



Australian Government

Australian Transport Safety Bureau

Runway incursion involving Diamond Aircraft Industries Inc. DA 40, VH-ERE

Sunshine Coast Airport, Queensland on 7 May 2023



ATSB Transport Safety Report

Aviation Occurrence Investigation (Short)

AO-2023-023

Final – 27 October 2023

Cover photo: Tony Arbon

Released in accordance with section 25 of the *Transport Safety Investigation Act 2003*

Publishing information

Published by: Australian Transport Safety Bureau
Postal address: GPO Box 321, Canberra, ACT 2601
Office: 12 Moore Street, Canberra, ACT 2601
Telephone: 1800 020 616, from overseas +61 2 6257 2463
Accident and incident notification: 1800 011 034 (24 hours)
Email: atsbinfo@atsb.gov.au
Website: www.atsb.gov.au

© Commonwealth of Australia 2023



Ownership of intellectual property rights in this publication

Unless otherwise noted, copyright (and any other intellectual property rights, if any) in this publication is owned by the Commonwealth of Australia.

Creative Commons licence

With the exception of the Coat of Arms, ATSB logo, and photos and graphics in which a third party holds copyright, this publication is licensed under a Creative Commons Attribution 3.0 Australia licence.

Creative Commons Attribution 3.0 Australia Licence is a standard form licence agreement that allows you to copy, distribute, transmit and adapt this publication provided that you attribute the work.

The ATSB's preference is that you attribute this publication (and any material sourced from it) using the following wording: *Source:* Australian Transport Safety Bureau

Copyright in material obtained from other agencies, private individuals or organisations, belongs to those agencies, individuals or organisations. Where you want to use their material you will need to contact them directly.

Addendum

Page	Change	Date

Executive summary

What happened

On 7 May 2023, the pilot of a Diamond Aircraft Industries Inc. DA 40, registered VH-ERE and operated by Flight Training Adelaide, was conducting a solo training flight from Sunshine Coast Airport, Queensland to Brisbane West Wellcamp Airport, Queensland.

At about 1328 local time, the DA 40 entered the runway 31 strip without a clearance resulting in a Boeing 737 aircraft that had been cleared to land conducting a go around.

What the ATSB found

The ATSB found that the pilot incorrectly thought they were holding at a taxiway intermediate holding position due to the distance from the holding point to the threshold and this was reinforced due to misunderstanding of a required instruction from the air traffic control to hold short at runway 31. As a result, they crossed the holding point in anticipation of there being a second holding point closer to the runway.

The ATSB also found that due to the angle of the taxiway in relation to the runway, it would have been difficult for the pilot to have seen the 737 aircraft on final. It is also likely that the crew of the 737 would not have seen the aircraft cross the holding point as it was obscured. Further, although not required to, the information in the Airservices Australia Departure and Approach Procedure charts and the Enroute Supplement did not indicate the holding point locations. Finally, while the Civil Aviation Safety Authority Manoeuvring map for the Sunshine Coast Airport did include the occurrence holding point, neither it nor the runway were accurately depicted.

What has been done as a result

The operator conducted an internal investigation into the runway incursion and has taken the following safety actions:

- a NOTAC¹ was issued to address landings in controlled zones, at airports other than home base, and solo flights to controlled zones
- a qualified flight instructor (QFI) meeting was conducted to communicate the importance of students understanding the signs, markings, lights and phraseology particularly when at a controlled aerodrome
- a student meeting was conducted to reiterate the points outlined in the QFI meeting.
- the results of class G and class C & D airspace quizzes appear in the monthly students reports to QFIs
- existing tutorials for class D, class C, Sunshine Coast Airport, Archerfield Airport, and Gold Coast Airport were reviewed and updated
- an exam and quiz specifically for Sunshine Coast Airport has been created
- quizzes for Sunshine Coast Airport, Archerfield Airport, and Gold Coast Airport have been made mandatory for all students before visiting these airports.

The operator is also in the process of reviewing the:

- requirements for solo flights to controlled zones, including the requirement for dual flight before any solo flight to any of the training controlled zones
- forms used by QFIs for issuing flight plans in controlled zones.

¹ NOTAC: The purpose of the NOTAC is to communicate information on new or changed policies and procedures and matters of an urgent or safety related nature affecting the proper and legal flying operations of the operator.

Sunshine Coast Airport, through its safety management process, carried out a review of the occurrence and has undertaken the following safety actions:

- To further improve the visual characteristics of the runway holding position markings at Foxtrot, the airport has installed mandatory instruction markings pursuant to Civil Aviation Safety Authority (CASA) Manual of Standards (MOS) Part 139 [section 8.40 - Mandatory Instruction Markings](#).
- Requested an update to the CASA manoeuvring map to correctly identify the runway length, location of displaced threshold and holding point Foxtrot.
- The airport has changed the information provided to Airservices Australia in relation to the Aeronautical Information Package (AIP) Enroute Supplement (ERSA) and the Departure and Approach Procedure (DAP) to reflect the runway 31 available take-off distance. Additionally, they have added the distance between holding point Foxtrot and the runway to the additional information section in the ERSA.

The Civil Aviation Safety Authority (CASA) will provide further clarification on the terminology and definition of runway starter extensions and clarity around the runway shading on ERSA and DAP diagrams. CASA has also recommended and supported a runway hotspot depiction at taxiway Foxtrot at the Sunshine Coast Airport to be added to the ERSA and DAP. Finally, the Sunshine Coast manoeuvring map, produced by CASA, has been upgraded to accurately reflect the airport layout.

Safety message

Runway incursions and other runway separation issues are one of the most significant risks to safe aviation operations and are a key global safety priority. This occurrence serves as a reminder to pilots that they should study the most up to date airport information using all available resources if they plan to land at an unfamiliar airport.

In addition, they should never hesitate to ask ATC for clarification if they are unsure or confused about instructions, as it helps prevent potential errors or worse. Common contributory factors and methods of safety controls have been published by Air Services Australia in [Runway Incursions at Metro D Aerodromes](#).

The investigation

Decisions regarding the scope of an investigation are based on many factors, including the level of safety benefit likely to be obtained from an investigation and the associated resources required. For this occurrence, a limited-scope investigation was conducted in order to produce a short investigation report, and allow for greater industry awareness of findings that affect safety and potential learning opportunities.

The occurrence

On 7 May 2023, a pilot of a Diamond Aircraft Industries Inc. DA 40, registered VH-ERE (ERE) and operated by Flight Training Adelaide, was conducting a solo training flight from Sunshine Coast Airport, Queensland to Brisbane West Wellcamp Airport, Queensland.

At 1322 local time, while parked at the general aviation area on the airport, the pilot contacted air traffic control (ATC) requesting a departure to the south-west. ATC instructed the pilot to 'taxi via Foxtrot to holding point² Foxtrot runway 31'³ (Figure 1) and cleared them to depart for Wellcamp via Esk at 4,500 ft. The pilot readback 'taxi via Foxtrot, use runway 31 and cleared to Esk at 4,500'. ATC reiterated 'taxi to holding point Foxtrot' to which the pilot apologised after reading back 'taxi to holding point Foxtrot'.

Figure 1: VH-ERE taxi path



Source: Google Earth annotated by the ATSB

ATC then turned their attention to a Boeing 737 (737), which was on final for runway 31, and an airport safety car that was escorting an aircraft under tow to the general aviation parking area. At 1327:25, while the 737 was on final approach, ATC cleared it to land on runway 31.

At 1327:40, ERE stopped at holding point Foxtrot and 20 seconds later the pilot radioed ATC and advised 'holding short of Foxtrot'. ATC observed ERE stationary at the holding point and instructed the pilot to 'hold short runway 31' to which the pilot responded 'Wilco'. ATC then

² Holding point: Signifies the entry to the runway environment.

³ Runway number: the number represents the magnetic heading of the runway.

requested a specific readback of the instruction to hold short runway 31 however, the pilot did not respond. Following a second request from ATC, the pilot responded with ‘Hold short runway 31’.

Ten seconds later, while ATC was completing a departure clearance for another aircraft on the ground and updating flight progress strips,⁴ ERE proceeded to cross the holding point without a clearance. The pilot later advised misunderstanding the instruction to hold short of runway 31 as they thought they were holding short of taxiway Foxtrot and that there was a second holding point closer to the runway. The driver of the safety car, who could see ERE and had heard the exchange between the pilot and ATC, notified ATC that ERE had ‘gone onto the runway’ as soon as there was a break on the radio. ERE had travelled approximately 74 m in this time.

Figure 2: Location of VH-ERE to inbound aircraft



Source: Sunshine Coast Airport annotated by the ATSB

The controller immediately instructed the 737, which was now on late final about 250 ft above the runway, to conduct a go around. One second after the go around instruction was given, ERE stopped. The pilot advised that as they were nearing the intersection with the runway and after hearing ATC instruct the approaching aircraft to go around, they stopped as they could not see a second holding point. The crew of the 737 advised that they had seen ERE stationary at holding point Foxtrot, however due to the high nose attitude of the aircraft, they lost sight of it under the aircraft’s nose as they continued the approach.

At 1329, ATC advised the 737 to make a left circuit and 20 seconds later instructed ERE to make a right turn and vacate the runway at Foxtrot. The pilot turned the aircraft around and taxied back on taxiway Foxtrot and after passing the holding point, was instructed by ATC to turn around and hold position. The 737 landed on runway 31 uneventfully 6 minutes later.

At 1337, ATC advised ERE to taxi ahead and hold short of runway 31 on Foxtrot. The pilot taxied on Foxtrot and just prior to reaching the holding point, ATC advised the pilot that they were at the holding point and described the markings.

At 1341, ATC instructed ERE to line up on runway 31, however, before they entered the runway ATC confirmed with the pilot that they were okay to continue the flight, to which the pilot replied,

⁴ Flight progress strip: Controllers use flight progress strips to maintain situation awareness of ATC operations and traffic. Standard annotations (such as recording the departure runway/location) provide information to assist with the correct execution of the controller’s plan and the early detection of any errors that may occur.

'all good'. ATC then cleared ERE for take-off and the pilot conducted an uneventful take-off and flight to Brisbane West Wellcamp Airport.

Context

Pilot

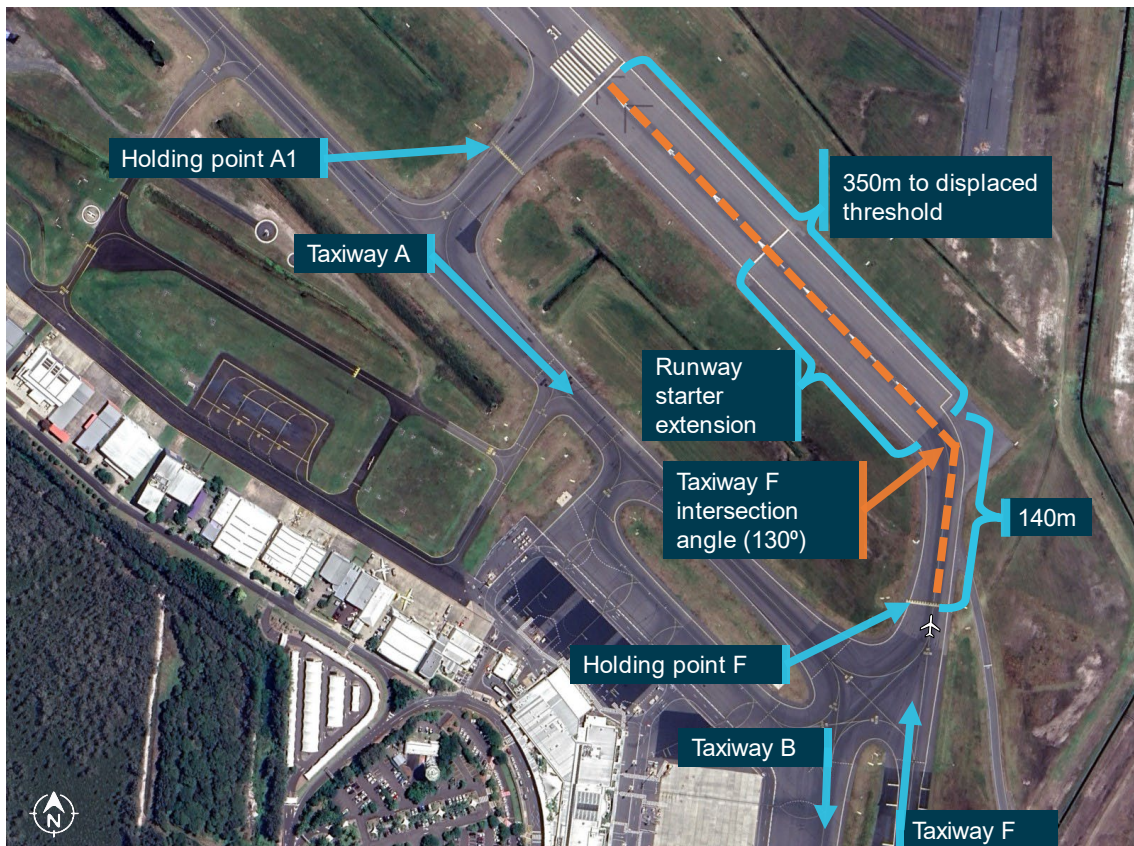
The pilot held a student pilot licence. They commenced training on 12 September 2022 at Brisbane West Wellcamp Airport. At the time of the occurrence, they had a total flying experience of 132.5 hours, of which 33.7 hours had been in the previous 30 days.

Runway and taxiway information

In June 2020, stage 1 construction of a new runway was completed and officially handed over to the Sunshine Coast Airport for operation. Stage 2, which included the completion of the displaced threshold, was completed in December 2020. The runway has an orientation of 128 degrees/308 degrees magnetic, giving the runway its 13/31 designation. The runway length is 2,800 m, which includes a 175 m permanently displaced threshold for runway 31 and a 170 m starter extension.⁵ The airport operates within Class D airspace.

Taxiway Foxtrot is the repurposed southern end of the decommissioned runway 18/36. Due to the angle between the taxiway and runway 31 (approximately 130° - Figure 3), there is approximately 140 m of taxiway from holding point Foxtrot to the intersection with runway 31 required to ensure that the holding point remained outside of the runway strip. Once reaching the intersection, there is approximately 350 m to the displaced runway threshold.

Figure 3: Taxiway Foxtrot in relation to the runway and other taxiways



Source: Google Earth annotated by the ATSB

⁵ Starter extension: an additional runway length made available for take-off, prior to the normal runway end at the commencement of the take-off run.

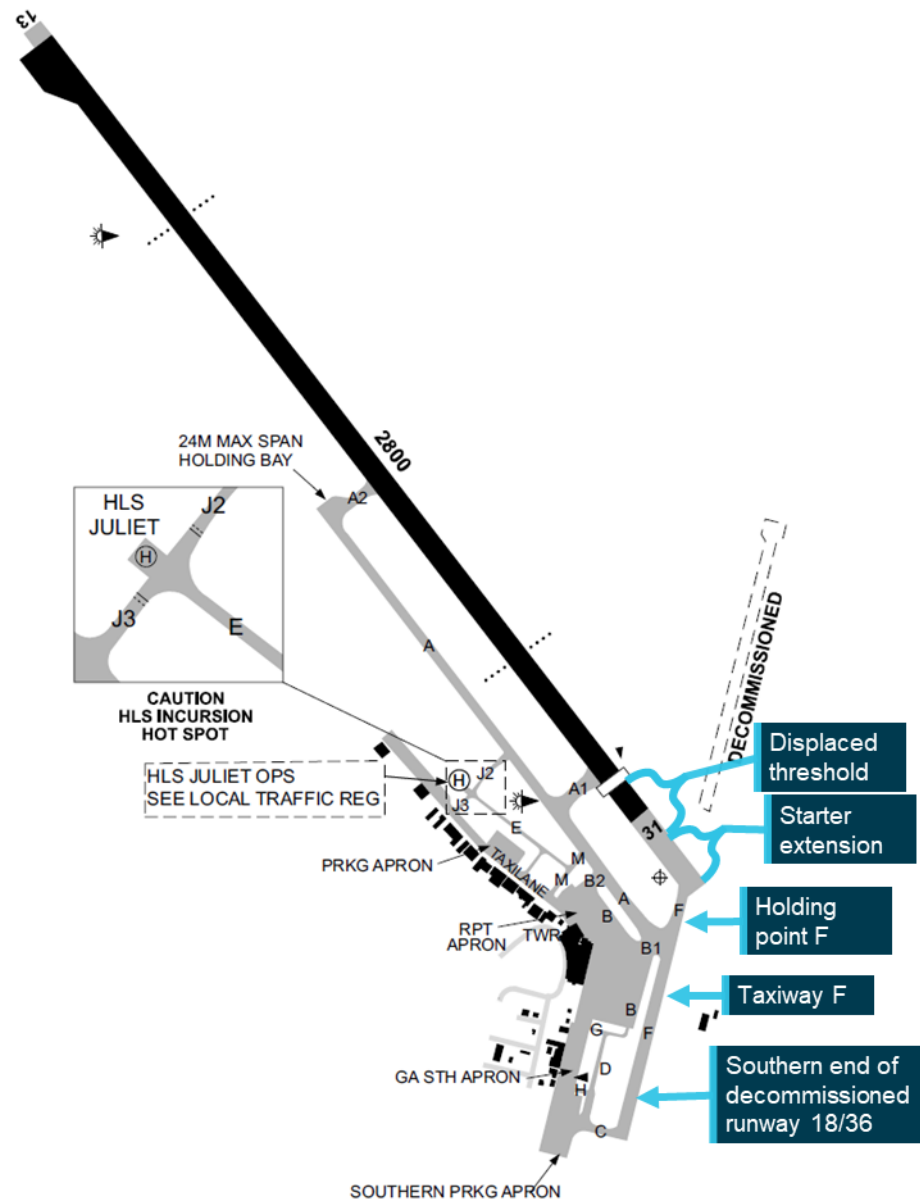
Airport diagrams

The airport diagram for the Sunshine Coast Airport in the Aeronautical Information Publication (AIP) Enroute Supplement (ERSA) (Figure 4) and the Departure and Approach Procedure (DAP) chart did not indicate any specific holding point locations. In the additional information section in the ERSA, it did not indicate the distance from the holding point to the runway junction. In addition, the ERSA did not indicate the full length of the runway (2800 m) in black shading, which is used to depict the length of runway available for take-off.

The information in these charts is supplied to Airservices Australia as the publishing body, by the Airport owner. The Civil Aviation Safety Regulations [Part 139 Manual of Standards \(MOS\) Chapter 5 Division 2 Standards for information](#) stipulates what information is required to be presented in the AIP documents. This did not require that holding points be depicted in the diagrams. However, International Civil Aviation Organisation Annex 4 Aeronautical charts section 13.6 (g) required that runway holding positions be marked. Australia had filed a difference with ICAO in relation to this requirement.

In addition, Part 139 MOS did not have a definition of a runway starter extension and did not outline the runway shading requirements when a runway starter extension was present.

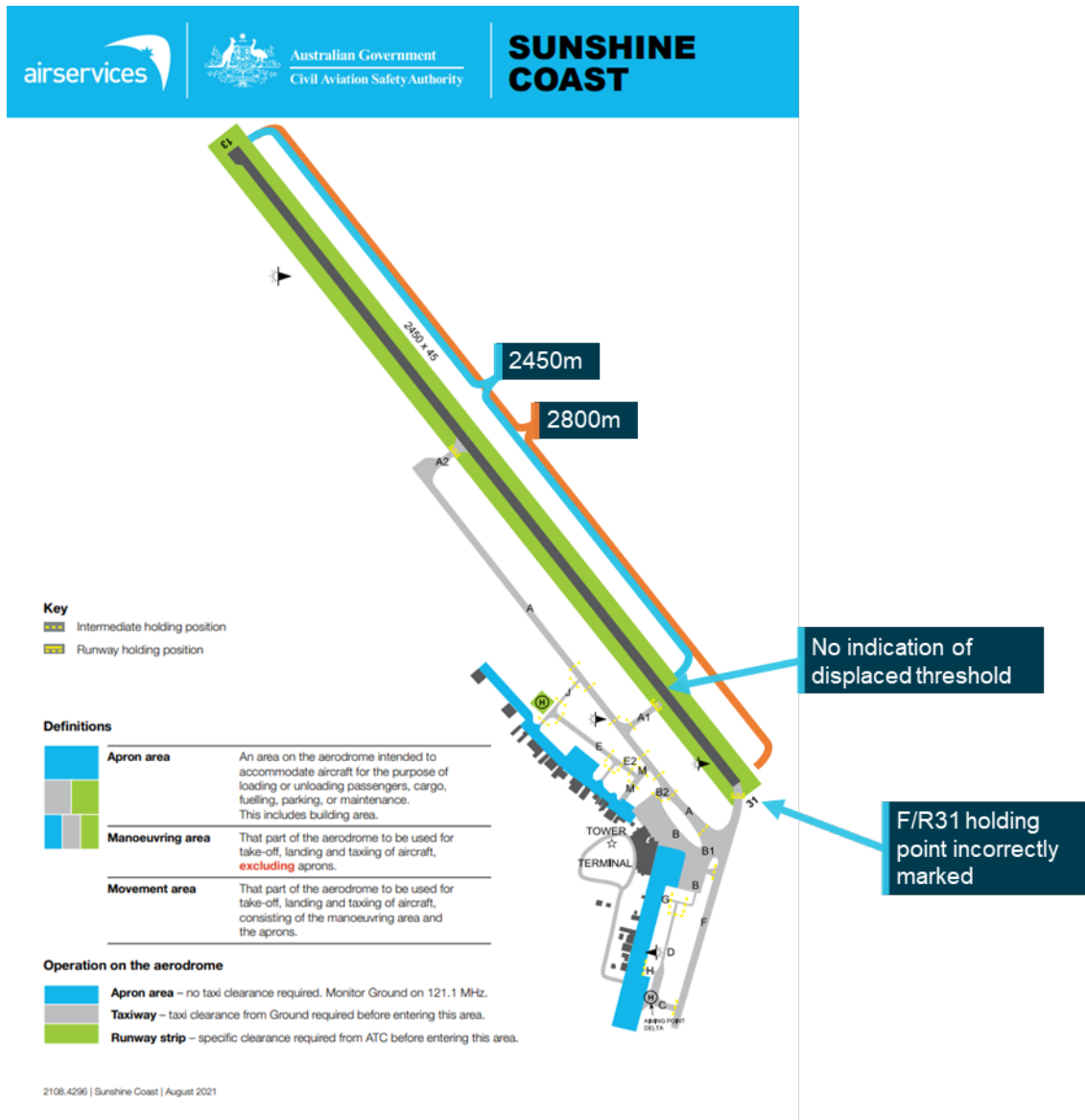
Figure 4: ERSA Sunshine Coast airport diagram



Source: Airservices Australia annotated by the ATSB

The Civil Aviation Safety Authority (CASA) aerodrome manoeuvring map for Sunshine Coast Airport (Figure 5) indicated that the entire length of the runway was 2,450 m and did not display the extra 350 m of displaced threshold. Additionally, the placement of holding point Foxtrot was not accurately depicted, with it being shown approximately 110 m closer to the intersection of the taxiway and extended runway. The map did not show the decommissioned runway.

Figure 5: Aerodrome Manoeuvring Map for Sunshine Coast



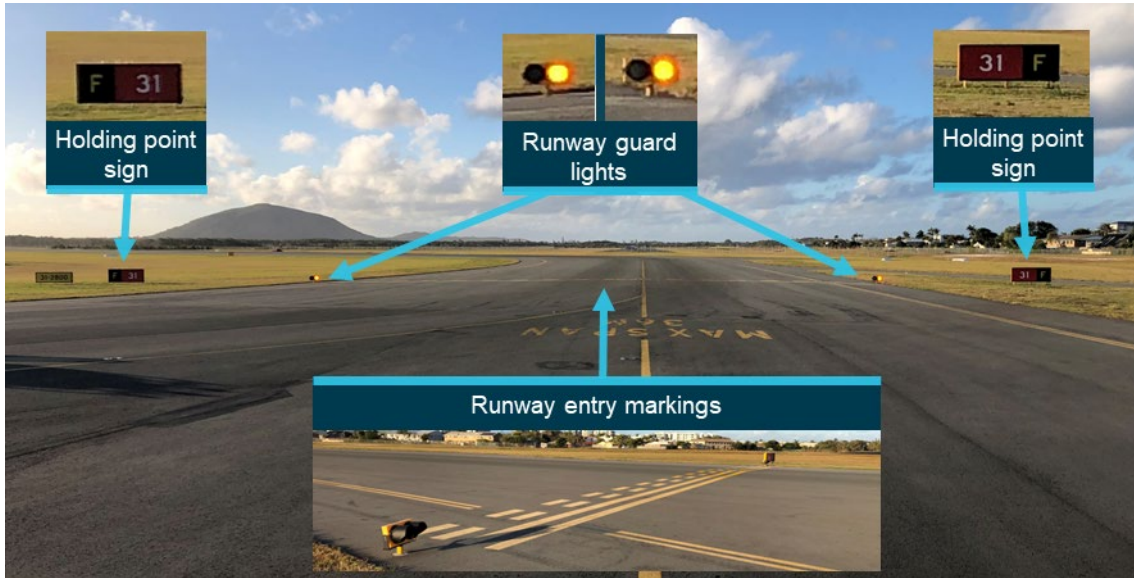
Source: CASA Aerodrome Manoeuvring Map for Sunshine Coast annotated by the ATSB

Holding point Foxtrot

Holding point Foxtrot was equipped with signage and ground markings to provide flight crews with visual cues indicating their position and proximity to the runway strip (Figure 6). The holding point was also equipped with runway guard lights which sat 30 cm above the ground on either side of the taxiway. These were bright yellow, and flashed when the runway was in operation.

The gable markers at the intersection between taxiway Foxtrot and runway 31 were in an irregular configuration to delineate the extent of the graded runway strip. Due to the location of the taxiway intersecting at the corner of the runway strip, flush rather than raised gables were provided at the taxiway shoulder. The gable that would be within the taxiway has been omitted. These differences were conducted under CASA approval.

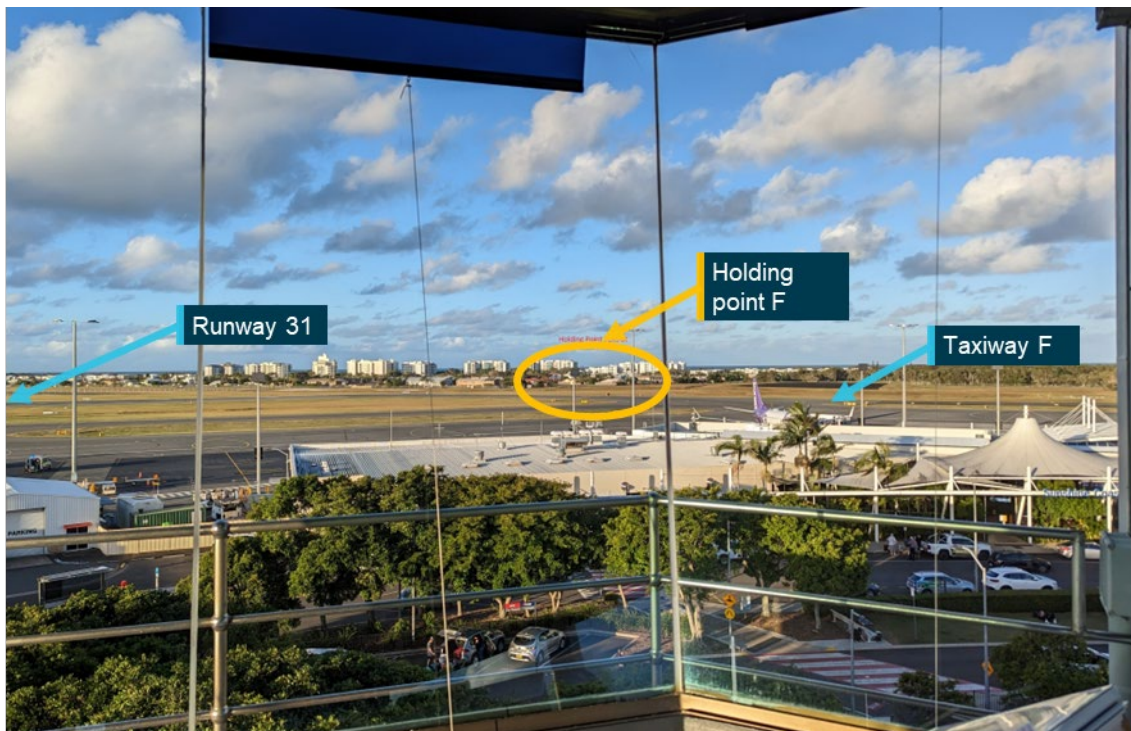
Figure 6: Holding point markings, signage and lights



Source: Sunshine Coast Airport annotated by the ATSB

From the control tower, which is approximately 400 meters from holding point Foxtrot, the entire length of taxiway Foxtrot, the holding point and the displaced threshold of runway 31 are visible.

Figure 7: View of holding point Foxtrot from the Sunshine Coast Airport control tower



Source: Air Services annotated by the ATSB

Training and briefings

The operator had multiple training documents on runway markings and signs. Students were also taught ground basics at the commencement of their training. Prior to flying solo to any airport in Class D airspace, the operator required that they complete a competency check. They also had a guidance section which included that ‘the student *must* first have demonstrated competence on two visits to the same aerodrome without instructor takeover’.

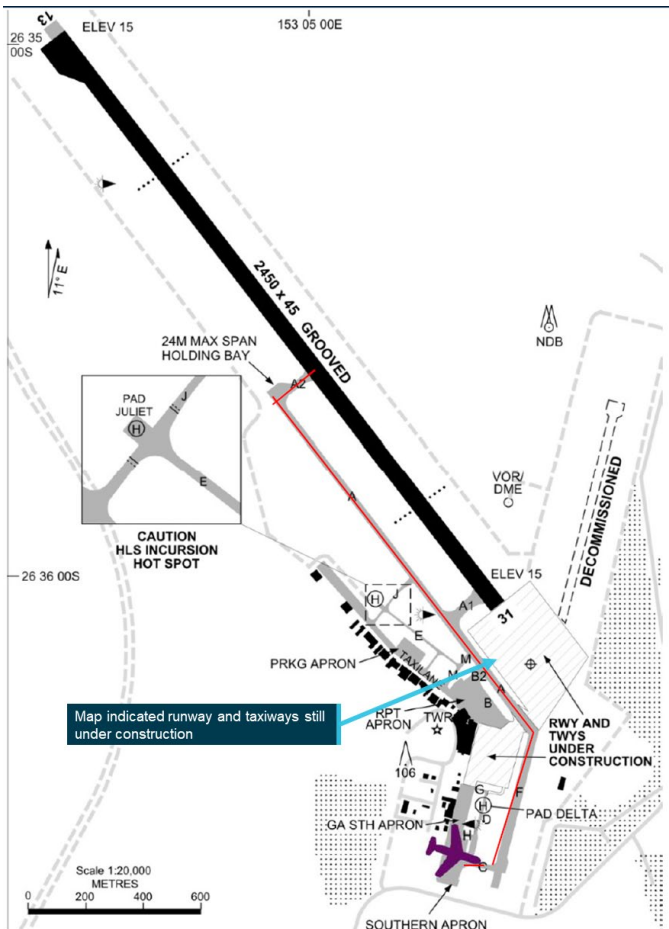
The training school records indicated that the pilot had completed the required competency check for operating to a Class D airspace on 18 April 2023, flying into Archerfield Airport, Queensland. The pilot had also completed 3 training flights to Sunshine Coast Airport, 2 flights with an instructor on 28 March and 4 April 2023, and a solo flight on 5 May 2023. None of these flights had required the use of holding point Foxtrot.

The operator had a briefing for Sunshine Coast Airport that contained:

- a description of class D airspace
- visual meteorological condition (VMC) requirements
- airport facilities including runways and lighting
- communication frequencies for the airport and surrounds
- reference points for training flights
- inbound and outbound information
- ground information.

The information relating to the runways and taxiways contained a graphic of the runway and taxiways at Sunshine Coast Airport (Figure 8) prior to the runway extension and taxiway Foxtrot completion in 2021. The map showed only 2 runway holding points: A1 and A2.

Figure 8: Sunshine Coast Airport map used in the operator airport briefing for students.



Source: Flight Training Adelaide annotated by the ATSB

Pre-flight briefing

On the occurrence flight, the student used the current ERSA for planning and runway information, and the departure and approach procedures (DAP) available at the time for ground information while taxiing at the airport. The student’s instructor reported that prior to the flight, when a briefing

of the airport layout was conducted with the student, only holding points A1 and A2, and the location of general aviation parking were discussed.

Other occurrences

The ATSB has investigated previous runway incursions at various locations throughout Australia, including:

- Runway incursion involving Beech Aircraft Corp. 58, VH-NSK Bankstown Airport, New South Wales, on 26 October 2021 ([AO-2021-046](#))
- Runway incursion involving a SAAB 340B, VH-ZRH Carnarvon Airport, Western Australia, on 31 August 2020 ([AO-2020-045](#))
- Runway incursion involving Sling 2, VH-ZSD Moorabbin Airport, Victoria, on 23 July 2020 ([AO-2020-037](#))
- Runway incursion and communication issues involving Bombardier Dash 8, VH-LQJ, Gladstone, Queensland, on 17 March 2020 ([AO-2020-019](#))
- Runway incursion involving Boeing 737, VH-XZM, resulting in a rejected take-off involving Boeing 737, VH-VZL, Perth Airport, Western Australia, on 28 April 2018 ([AO-2018-032](#))

Safety analysis

The pilot was familiar with the runway configurations at Sunshine Coast Airport having flown to the airport previously. However, having never used taxiway Foxtrot, they were unfamiliar with the length of taxiway from holding point Foxtrot to the intersection with the runway associated with the oblique angle between them, and the displaced threshold on runway 31. Due to this distance of almost 500 m, they incorrectly assessed that they were holding at a taxiway intermediate holding position, despite the visible difference between the marking of runway and intermediate hold points and the correct lighting and signage at the holding point. This error was reinforced when the pilot received instructions to 'hold short runway 31', as the change in terminology from ATC led them to believe there was an additional holding point closer to the runway. At this point, and while unsure where any additional holding point might be located, the pilot did not ask ATC for clarification on the instructions and instead proceeded to cross the holding point. As the pilot did not expect to enter the runway strip, they did not scan for incoming aircraft. While they had heard an aircraft being cleared to land, they were unaware of the aircraft's proximity to the runway.

The controller had given the 737 clearance to land prior to ERE reaching the Foxtrot holding point. At that stage, the landing path for the 737 was clear. The controller visually confirmed ERE had stopped at the holding point and had ensured they had read back that they were to 'hold short runway 31' prior to turning their attention to another aircraft. The controller was not required to check the landing path for the 737 again until immediately before the aircraft crossed the threshold.

Due to the angle of taxiway Foxtrot to the runway, a pilot in the left seat of an aircraft would need to scan for landing aircraft at an angle of 125–130° from directly ahead. As explained in ATSB report AS-2022-001, a normal field of view is approximately 190° (95° either side of the forward view). This would have placed the approaching 737 outside the normal field of view of the pilot of ERE. It is also likely that the pilot was concentrating to the front of the aircraft as they were looking for a holding point. In addition, the pilot was sitting on the left side of the aircraft and so their view would also have been blocked by aircraft structure. This would have required them to move forward in the seat to have visibility of an aircraft on final approach.

The crew of the 737 did not know ERE had crossed the holding point as their view was obscured by the nose of the aircraft. As such, they were unaware of the runway incursion and would likely not have taken evasive action if they had not been instructed to conduct a missed approach. The

aerodrome reporting officer (ARO) proactively alerted ATC to the incursion and reduced the likelihood of a serious incident.

The ERSA and the DAP diagrams for the Sunshine Coast Airport did not include holding point locations. While the ERSA was not required to show the locations of holding points, inclusion of this information reduces the potential for confusion or ambiguity around their position. Also, the marking used on the runway diagram to depict the take-off distance available was not accurate. Additionally, the CASA aerodrome manoeuvring map for Sunshine Coast Airport did not give an accurate representation of the holding points or the runway and, if compared to the ERSA, would increase confusion for pilots.

The operator's briefing documentation on the layout of Sunshine Coast Airport was also not current and did not provide the correct information to students. However, this was found not to have contributed to the pilot's lack of understanding of the airport taxiway layout and markings as the pilot was using the ERSA for pre-flight planning and the DAP as a location reference while at the airport, and so had the latest available information about the runway layout at the airport.

Findings

ATSB investigation report findings focus on safety factors (that is, events and conditions that increase risk). Safety factors include 'contributing factors' and 'other factors that increased risk' (that is, factors that did not meet the definition of a contributing factor for this occurrence but were still considered important to include in the report for the purpose of increasing awareness and enhancing safety). In addition 'other findings' may be included to provide important information about topics other than safety factors.

These findings should not be read as apportioning blame or liability to any particular organisation or individual.

From the evidence available, the following findings are made with respect to the Runway incursion involving Diamond Aircraft Industries Inc. DA 40, VH-ERE that occurred at the Sunshine Coast Airport, Queensland on 7 May 2023.

Contributing factors

- The student misinterpreted the instruction given by ATC and their location in relation to the runway, resulting in their aircraft entering the runway strip while a Boeing 737 was on final approach.
- The Airservices Australia-published Departure and Approach Procedure chart (DAP) for the Sunshine Coast Airport did not indicate the position of the holding point on taxiway Foxtrot, which added to the confusion of the pilot when instructed to hold short of runway 31.

Other factors that increased risk

- The oblique angle of the taxiway to the runway meant that the pilot of the DA 40 would not have had the Boeing 737 within their normal field of view and the 737 pilots on final would not have seen the Diamond as it was obscured under the nose of the aircraft while on final approach. This limited both crew's ability to react without intervention from a third party.
- The Civil Aviation Safety Authority (CASA) Sunshine Coast manoeuvring map did not accurately depict the position of holding point Foxtrot and the large runway displacement.

Other factors

- The aerodrome reporting officer (ARO) proactively alerted ATC to the incursion and as such reduced the likelihood of a serious incident.

Safety actions

Whether or not the ATSB identifies safety issues in the course of an investigation, relevant organisations may proactively initiate safety action in order to reduce their safety risk. The ATSB has been advised of the following proactive safety action in response to this occurrence.

Safety action by Flight Training Adelaide

Flight Training Adelaide conducted an internal investigation into the runway incursion and has actioned the following safety actions:

- A notice to crew (NOTAC) was issued to address landings at controlled zones, airports other than home base, and solo flights to controlled zones.
- A qualified flight instructor (QFI) meeting was conducted to communicate the importance of students understanding the signs, markings, lights and phraseology, particularly when at a controlled aerodrome.
- A student meeting was conducted to reiterate the points outlined in the QFI meeting.
- The results of class G and class C & D airspace quizzes appear in the monthly students reports to QFIs.
- Existing tutorials for class D, class C, Sunshine Coast Airport, Archerfield Airport, and Gold Coast Airport were reviewed and updated.
- An exam and quiz specifically for Sunshine Coast Airport has been created.
- Quizzes for Sunshine Coast Airport, Archerfield Airport, and Gold Coast Airport have been made mandatory for all students before visiting these airports.

The operator is also in the process of reviewing the:

- requirements for solo flights to controlled zones, including the requirement for dual flight before any solo flight to any of the training controlled zones
- forms used by QFIs for issuing flight plans in controlled zones.

Safety action by Sunshine Coast Airport

Sunshine Coast Airport, through its safety management process, carried out a review of the occurrence and has undertaken the following safety actions:

- Installed mandatory instruction markings pursuant to [Civil Aviation Safety Authority \(CASA\) Manual of Standards \(MOS\) 139 section 8.40 - Mandatory Instruction Markings](#), to further improve the visual characteristics of the runway holding position markings at Foxtrot, the airport (Figure 9).

Figure 9: New runway holding point markings at Sunshine Coast Airport



Source: Sunshine Coast Airport

- Requested an update to the CASA manoeuvring map to correctly identify the runway length, location of displaced threshold and holding point Foxtrot.
- Changed the Aeronautical Information Publication (AIP) Enroute Supplement (ERSA) and the Departure and Approach Procedure (DAP) to reflect the full length of runway 31. Additionally, the distance between holding point Foxtrot and the runway has been added to the additional information section in the ERSA.

Safety action by the Civil Aviation Safety Authority

The Civil Aviation Safety Authority (CASA) has taken the following safety actions:

- provided clarity around the runway shading on ERSA and DAP diagrams
- upgraded the Sunshine Coast manoeuvring map to accurately reflect the airport layout.
- recommended and supported the addition of a runway hotspot depiction at taxiway Foxtrot at the Sunshine Coast Airport to the ERSA and DAP.

CASA further advised that clarification on the terminology and definition of runway starter extensions will be added to the Part 139 MOS. They are also in the process of transferring the Aeronautical Information Package to digital form, which includes transferring all runway maps to digital versions. This will allow a more detailed map to be available.

General details

Occurrence details

Date and time:	7 May 2023 1329 Eastern Standard Time	
Occurrence class:	Serious Incident	
Occurrence categories:	Runway incursion, Loss of separation assurance	
Location:	Sunshine Coast Airport, Queensland	
	Latitude: 26° 36.240' S	Longitude: 153° 5.501' E

Aircraft details Aircraft details

Manufacturer and model:	DIAMOND AIRCRAFT INDUSTRIES INC. DA 40	
Registration:	VH-ERE	
Operator:	FLIGHT TRAINING ADELAIDE PTY LTD	
Serial number:	40.736	
Type of operation:	Part 91 General operating and flight rules-Part 142 - training	
Activity:	General aviation / Recreational-Instructional flying-Instructional flying - solo	
Departure:	Sunshine Coast Airport, Queensland	
Destination:	Brisbane West Wellcamp Airport, Queensland	
Persons on board:	Crew – 1	Passengers – 0
Injuries:	Crew – 0	Passengers – 0
Aircraft damage:	Nil	

Manufacturer and model:	THE BOEING COMPANY 737-838	
Registration:	VH-VYD	
Operator:	Qantas Airways Limited	
Serial number:	33992	
Type of operation:	Part 121 Australian air transport operations - Larger aeroplanes-Standard Part 121	
Activity:	Commercial air transport-Scheduled-Domestic	
Departure:	Melbourne Airport, Victoria	
Destination:	Sunshine Coast Airport, Queensland	
Persons on board:	Crew – 6	Passengers – 122
Injuries:	Crew – 0	Passengers – 0
Aircraft damage:	Nil	

Sources and submissions

Sources of information

The sources of information during the investigation included:

- the involved pilots and air traffic controller
- Airservices Australia
- Flight Training Adelaide

References

Australian Transport Safety Bureau (2022). AS-2022-001 - Aircraft performance and cockpit visibility study supporting investigation into the mid-air collision involving VH-AEM and VH-JQF near Mangalore Airport, Victoria on 19 February 2020. Canberra: Australian Transport Safety Bureau

Submissions

Under section 26 of the *Transport Safety Investigation Act 2003*, the ATSB may provide a draft report, on a confidential basis, to any person whom the ATSB considers appropriate. That section allows a person receiving a draft report to make submissions to the ATSB about the draft report.

A draft of this report was provided to the following directly involved parties:

- the involved pilots and air traffic controller
- Sunshine Coast Airport
- Flight Training Adelaide
- Qantas
- Civil Aviation Safety Authority
- Airservices Australia

Submissions were received from:

- the air traffic controller
- Sunshine Coast Airport
- Flight Training Adelaide
- Civil Aviation Safety Authority
- Airservices Australia

The submissions were reviewed and, where considered appropriate, the text of the report was amended accordingly.

Australian Transport Safety Bureau

About the ATSB

The ATSB is an independent Commonwealth Government statutory agency. It is governed by a Commission and is entirely separate from transport regulators, policy makers and service providers.

The ATSB's purpose is to improve the safety of, and public confidence in, aviation, rail and marine transport through:

- independent investigation of transport accidents and other safety occurrences
- safety data recording, analysis and research
- fostering safety awareness, knowledge and action.

The ATSB is responsible for investigating accidents and other transport safety matters involving civil aviation, marine and rail operations in Australia, as well as participating in overseas investigations involving Australian-registered aircraft and ships. It prioritises investigations that have the potential to deliver the greatest public benefit through improvements to transport safety.

The ATSB performs its functions in accordance with the provisions of the *Transport Safety Investigation Act 2003* and Regulations and, where applicable, international agreements.

Purpose of safety investigations

The objective of a safety investigation is to enhance transport safety. This is done through:

- identifying safety issues and facilitating safety action to address those issues
- providing information about occurrences and their associated safety factors to facilitate learning within the transport industry.

It is not a function of the ATSB to apportion blame or provide a means for determining liability. At the same time, an investigation report must include factual material of sufficient weight to support the analysis and findings. At all times the ATSB endeavours to balance the use of material that could imply adverse comment with the need to properly explain what happened, and why, in a fair and unbiased manner. The ATSB does not investigate for the purpose of taking administrative, regulatory or criminal action.

Terminology

An explanation of terminology used in ATSB investigation reports is available on the ATSB website. This includes terms such as occurrence, contributing factor, other factor that increased risk, and safety issue.