Australian Government
Australian Transport Safety Bureau

Collision with terrain during go-around involving Cessna U206F, VH-TDQ

39 km south-east of Moora, Western Australia, on 1 September 2024

ATSB Transport Safety Report
Aviation Occurrence Investigation (Defined)
AO-2024-049
Final – 30 June 2025

Cover photo: Supplied by the operator

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:	atsb.gov.au

Acknowledgement of Country and Traditional Owners
The Australian Transport Safety Bureau acknowledges the traditional owners of country throughout Australia, and their continuing connection to land, sea and community. We pay our respects to them and their cultures, and to elders both past and present.

Investigation summary

What happened

On the morning of 1 September 2024, the pilot of a Cessna U206F, registered VH-TDQ and operated by Fly Esperance, departed a private aircraft landing area 21 NM (39 km) southeast of Moora, Western Australia (WA) with 5 passengers onboard for a 15-minute local area flight. On return to the landing area, the aircraft bounced twice on landing before the pilot attempted a go-around. During the go-around, the pilot incorrectly set the flap, and the aircraft lost height impacting its right wing with terrain, resulting in minor damage. The aircraft then touched down on the landing gear in a field adjacent to the runway.

The pilot then evacuated the passengers. The front seat and middle row passengers egressed through the pilot's forward left cabin door. The pilot then proceeded to assist the egress of 2 passengers seated in the rear seat row of the aircraft through the right-side cargo door emergency exit. The aircraft's flaps remained extended in the 10° position which blocked the forward half of the cargo door emergency exit. The pilot was unable to retract the flaps and the passengers, an older person and child, were then forced to climb over the middle row of seats and egress through the pilot's forward left cabin door. None of the occupants reported injuries.

What the ATSB found

On return to the aircraft landing area, the pilot conducted a non-standard approach to join the circuit. This reduced the time available for the pilot to configure the aircraft, manage the airspeed and prepare for a short field landing.

As a result of excess speed on approach for a full flap, short field landing, the aircraft landed long and bounced twice, at which point the pilot elected to conduct a go-around. As the aircraft began to climb away, the pilot retracted the flap further than intended and as a result, the aircraft could not achieve adequate climb performance.

The rear emergency exit was the double cargo doors, which required the forward half of the door to be opened before the rear door could be opened. With the flaps extended in the 10° position when the aircraft came to rest, the full opening of the forward cargo door was not possible. The forward door could still be made ajar with the flaps extended, enough to reach and operate the rear door handle. However, the rear seat passengers were not fully aware how to do this and were unable to open the rear cargo door to enable an emergency exit.

The pilot attempted to assist the rear seat passengers' egress from outside the aircraft, however they were unaware that the rear cargo door on the Cessna 206 could be opened from the outside when the front cargo door was blocked by the extended flaps. After the pilot unsuccessfully attempted to retract the flaps, they instructed the passengers to climb over the middle row seats to egress via the pilot's forward left cabin door.

The ATSB found that the operator's pre-flight passenger briefing did not include the demonstration of, and pilots were not trained how to operate, the emergency exit via the cargo door with the flaps extended.

Similar to previous ATSB and international investigations involving Cessna 206 accidents requiring emergency egress, it was found that without the installation of optional cargo door modifications or a reduction in passenger seats, the emergency egress of rear seat passengers was impeded when the flaps are extended. The difficulty in egressing via the cargo door emergency exit (when flaps were extended) increases risk to passenger survivability in the event of a post-accident fire or water ditching. This has been formally recognised in Canada where cargo door modifications are compulsory unless middle row passenger seating is reduced. However, this is not the case in the United States, where the Cessna 206 was certified, nor in Australia.

What has been done as a result

To advise Cessna 206 pilots and operators of the difficulties occupants have encountered egressing the rear cargo door as identified in several transport safety investigations, the ATSB issued safety advisory notice (AO-2024-049-SAN-001). The safety advisory notice encourages pilots and operators to ensure a thorough pre-flight passenger demonstration is conducted of the rear cargo emergency exit egress when the wing flap remains extended.

Fly Esperance Pty Ltd also advised that a staff training exercise had been conducted to demonstrate the process for operating the rear door in the event of post-landing flap extension and has advised that this procedure is to be emphasised on all pre-departure passenger briefings. The ATSB will monitor this safety action until the adoption of procedural changes to staff training and operational pre-flight safety briefings.

Furthermore, a second safety advisory notice was issued to strongly encourage operators and owners to review Transport Canada Airworthiness Directive CF-2020-10, and consider either the removal of a middle row seat to improve rear seat occupants' access to the pilot's forward left cabin door or the fitment of approved Cessna 206 emergency exit modifications to reduce the risk created by the extended flap preventing the immediate and unobstructed use of the rear cargo doors during an emergency exit.

Fly Esperance Pty Ltd advised it is in the process of investigating the various STCs mentioned in the report, to see which will be best suited to VH-TDQ in order to improve egress from the aircraft in the event of flaps being deployed.

After the occurrence, the operator conducted an internal review and has made the following amendments to the company operations manual:

- Added pictorial for non-controlled aerodrome circuit procedure to clarify the joining procedure at non-controlled aerodromes.
- To assist pilots to identify a stable approach an aircraft landing weight table has been added, indicating the recommended speeds for landing with aircraft flaps retracted and extended.
- Company aircraft will now have portable GPS tracking devices improving the visibility of the aircraft when away from base.

- The operator also reported that a greater emphasis will be placed on pilots-in-command under supervision training prior to a company line check, highlighting what can happen when standard procedures are not followed.

The operator advised that its updated operations manual had been provided to CASA for approval.

Safety message

This occurrence further demonstrates the difficulty occupants of the Cessna 206 face during an emergency egress via the cargo door, when the wing flaps remain extended. This highlights the importance of Cessna 206 pre-flight passenger briefings incorporating a demonstration of the limitations of the cargo door as an emergency exit with the flaps extended.

Furthermore, owners and operators of Cessna 206 aircraft are encouraged to review and assess changes to the aircraft passenger configuration implemented by Transport Canada with Airworthiness Directive CF-2020-10. As an alternative, several acceptable means of compliance for the Airworthiness Directive exist, providing modifications to the emergency exits of the aircraft and thereby improving the survivability in the event of an incident or accident.

Contents

The occurrence

The day before the accident

On 31 August 2024, the pilot of a Cessna U206F, registered VH-TDQ and operated by Fly Esperance, departed Esperance Airport, Western Australia (WA). The aircraft was ferried to a private aircraft landing area (ALA), 50 NM (93 km) north-west of Esperance to conduct a non-scheduled air transport flight to a private ALA about 21 NM (39 km) south-east of Moora. The 3 passengers and pilot would spend the night at the property with the intention of returning the following day.

On the first arrival at the destination ALA, the pilot made an approach to the westerly runway and configured the aircraft with 20° flap[1] for landing. During the first landing attempt, the aircraft bounced and the pilot conducted a go-around.[2] On the second landing attempt, the pilot configured the aircraft in a 40° full-flap configuration and landed without incident.

Accident flight

On the morning of 1 September 2024, the customers requested two 15-minute local flights for the family members they had been visiting. The pilot consulted the operator's chief pilot by phone who approved the flights. The pilot then collected the passenger's weights and assigned them to each flight.

The pilot gathered the passengers of both flights together and conducted a group safety briefing before the passengers on the first flight boarded the aircraft. With 5 passengers on board, the pilot took off on the western runway and departed about 1050 local time, tracked to the north before returning to the ALA a short time later (Figure 1). About 2 NM (3.7 km) north and within sight of the ALA, the pilot assessed that the aircraft was too high and conducted a left orbit to reduce height.

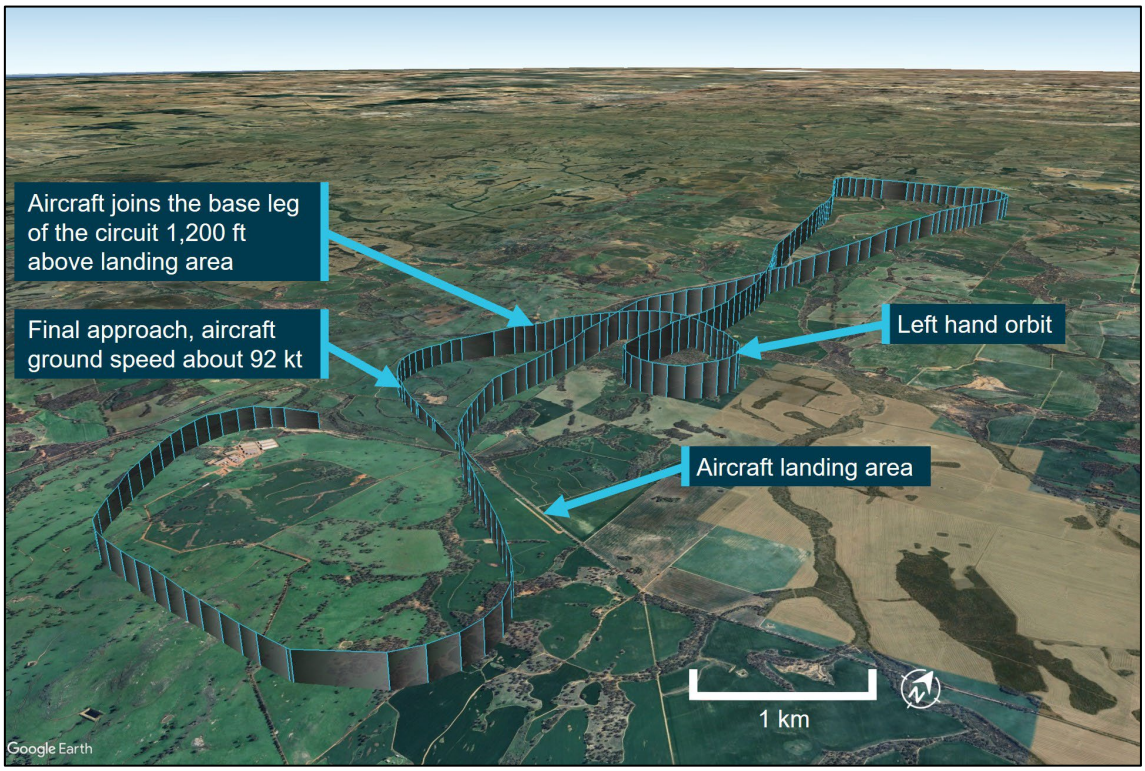
The pilot reported they were advised the previous day by the local agricultural pilots to utilise the uphill slope for landing using the easterly runway and recalled, as there were no other aircraft in the vicinity, directly joining the base leg of the circuit for the easterly runway. They observed a 75 kt airspeed on final approach before configuring the aircraft for a full flap final approach for landing.

---

1 Flap: lift devices mounted on the wing trailing edge.

2 Go-around: a flight path taken by an aircraft after an aborted approach to landing.

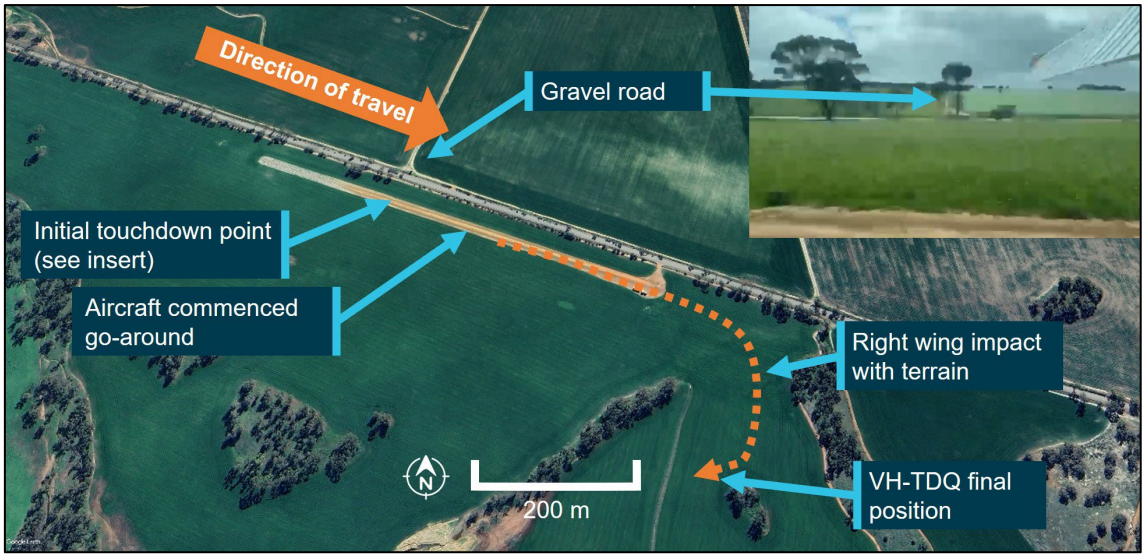
Figure 1: VH-TDQ flight track



Source: Google Earth, annotated by the ATSB

The pilot landed the aircraft about 80 m (Figure 2) past the end of the easterly runway and bounced twice before they applied full power and commenced a go-around. The pilot was unable to recall their airspeed at the time of the flap reduction, however reported that the aircraft had probably dissipated a considerable amount of speed during the bounces prior to initiating a go-around. As the aircraft began the initial climb the pilot reduced the flap setting, unknowingly mis-selecting the 10° setting.

Figure 2: Aircraft landing area

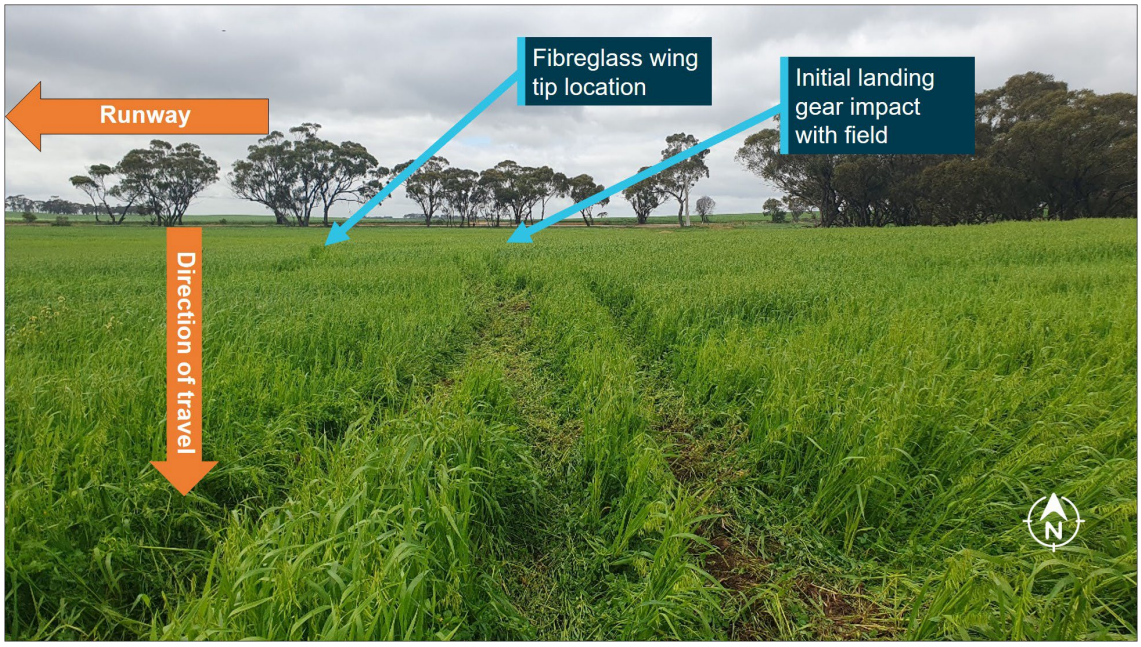


Source: Google Earth, *annotated by the ATSB*

As the flap retracted, the aircraft lost height and the pilot was unable to maintain control. The aircraft dropped the right wing and the right wingtip grazed the ground in the adjacent field.

The right wingtip then raised above the crop height, however the propeller and landing gear remained partially in the crop (Figure 3) increasing drag and reducing speed. Shortly after, the aircraft touched down on its landing gear with the propeller making full contact with the crop and stopping the engine. The aircraft came to a stop upright, about 250 m from the runway, with the flaps extended in the 10° position. The pilot recalled at this point they switched off the aircraft's fuel and electrics.

Figure 3: Aircraft landing gear marks in field adjacent to the runway



Source: Fly WA Group, annotated by the ATSB

The pilot then checked on the welfare of the passengers and as a precaution, instructed them to evacuate the aircraft.

The pilot successfully egressed the front seat and middle-row passengers through the forward left cabin door. They then proceeded to the right side of the aircraft to assist the 2 passengers in the rear seats egress through the right-side cargo doors.

On approaching the rear of the aircraft, the pilot observed that the extended flap had blocked the forward half of the cargo door and therefore believed they would not be able to open the rear half of the cargo emergency exit. After an unsuccessful attempt to retract the flaps, the pilot reported they were no longer operational. They did not attempt to open the rear cargo door further and instructed the rear seat passengers, an older person and young child, to egress over the middle row seat and then through the pilot's forward left cabin door.

The aircraft received minor damage to the right fibreglass wingtip and aileron. No injuries were reported, and all passengers successfully evacuated the aircraft.

Context

Pilot information

The pilot held a commercial pilot licence (aeroplane), issued in August 2016. At the time of the accident, the pilot had about 390 hours of total flying experience, with 134.4 hours as pilot in command and about 30 hours on the Cessna 206. The pilot had operated for 49.4 hours in the last 90 days and held a current class 1 medical certificate that was valid until 29 July 2025.

The pilot was employed by the operator in June 2024 and had flown scenic flights from Jandakot, Western Australia (WA), before gaining full time employment with the same operator to conduct flights from the operator's Esperance base, where the pilot had been located since August 2024.

During their initial employment with the operator, the pilot received about 13 hours of line training. The training included:

- emergency procedures
- remote airfields
- short fields
- maximum all-up weight flight.

The pilot's logbook indicated a check flight was conducted by the operator's chief pilot on 19 July 2024. They then began commercial flights for the operator about 1 week later.

Although they had held a commercial licence since 2016, this was the pilot's first aviation employment, having completed training and private flying before gaining employment with the operator. The logbook also indicated that prior to the pilot's employment with the operator, limited flying was conducted, with a total of 4.2 hours flown in the 12 months before commencing with the operator.

Aircraft information

General information

The Cessna U206F is a single piston engine, high winged, 6-seat, unpressurised aircraft with fixed landing gear. The aircraft was powered by a Teledyne Continental IO-520 engine.

VH-TDQ was manufactured in the United States in 1975 and first registered in Australia in August 1975. Fly Esperance became the registration holder on 29 April 2023.

Cessna 206 variants

The Cessna 206 was produced between 1963 and 1986. In 1998, Cessna restarted production of the Cessna 206 and the aircraft remains in production.

The original model, named the Cessna 206 Super Skywagon, was produced between 1963 and 1965 and featured the rear right side double cargo doors. Subsequent models (Table 1) were also manufactured with the double cargo doors and included numerous different models between 1963 and 1986. Cessna aircraft company halted production of

206 aircraft between 1987 and 1997. Production resumed in 1998 with the current model 206H.

Table 1: Cessna 206 models manufactured with the double cargo doors

Year	Cessna 206 model name
1963/65	206 Super Skywagon
1966*	U206A 206 Super Skywagon
1967*	U206B Super Skywagon
1968*	U206C Super Skywagon
1969*	U206D Super Skywagon
1970/71*	U206E Skywagon 206/Stationair
1972-76*	U206F Stationair
1977-86*	U206G Stationair
1998-current*	206H Stationair

** Indicates model was also manufactured with a turbo variation*

Aircraft flaps

The Cessna 206 has an electrically-controlled flap system. This requires the battery master[3] to be on and also requires the cargo doors to be completely closed. Closed cargo doors trigger a micro-switch, located in the doorframe, which completes the electrical circuit and then allows flap movement. As the Cessna 206 flaps extend across the closed forward cargo door (see *Cabin layout and exits*), this provides a protection so the flaps cannot be inadvertantly extended into an open cargo door and damage the aircraft.

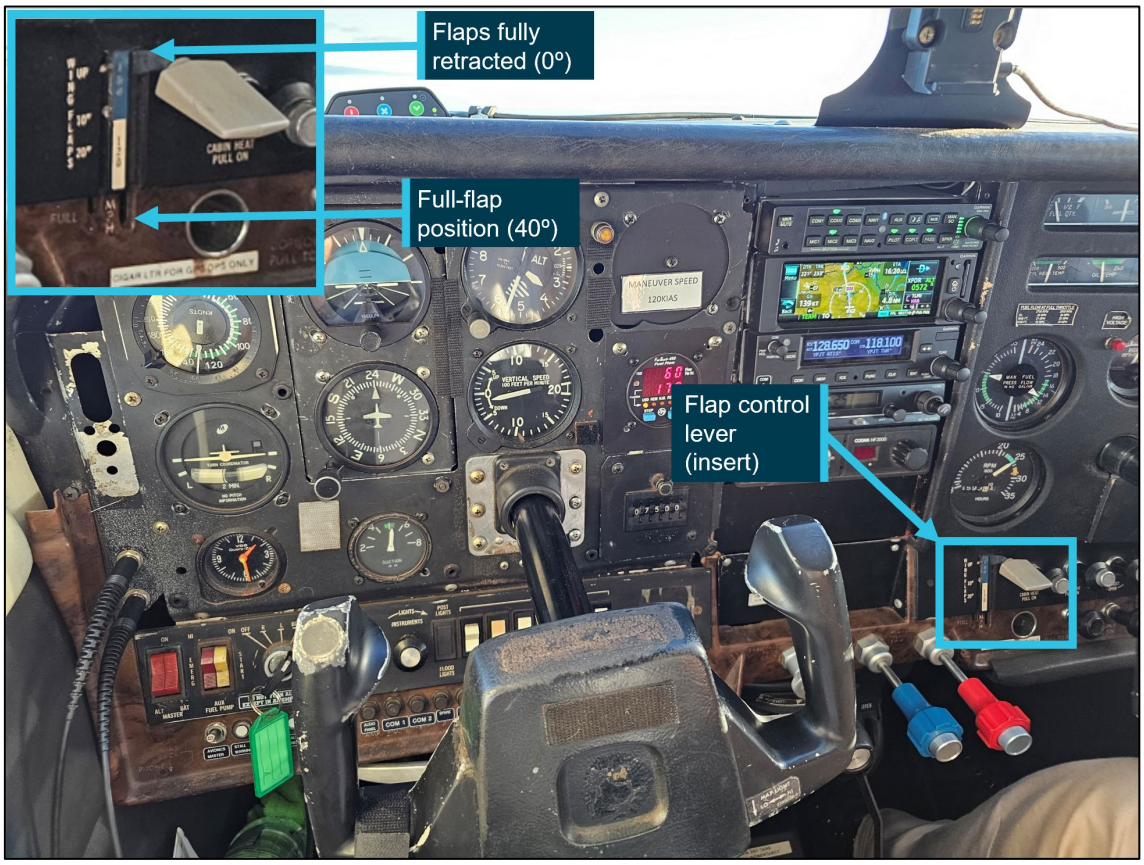
The flap control lever in the Cessna U206F is located on the pilot's right side (Figure 4) and is clearly visible from the pilot's seat. The lever allows the flaps to be set in any position between 0° (flaps fully retracted) and 40° (full-flap extension) with an adjacent placard marking the flap position.

The pilot described on numerous occasions during an interview with the ATSB 'hitting or flicking' the flap selector lever, identifying that the flap selection was sometimes made without the time taken to confirm the flap selection was in the correct position.

The operator's chief pilot reported they had not observed the pilot manipulating the lever like this during the 13 hours of in command under supervision (ICUS) flying they completed with the pilot.

[3] Battery master: provides electrical power from the battery to the aircraft systems.

Figure 4: Cessna U206F cockpit

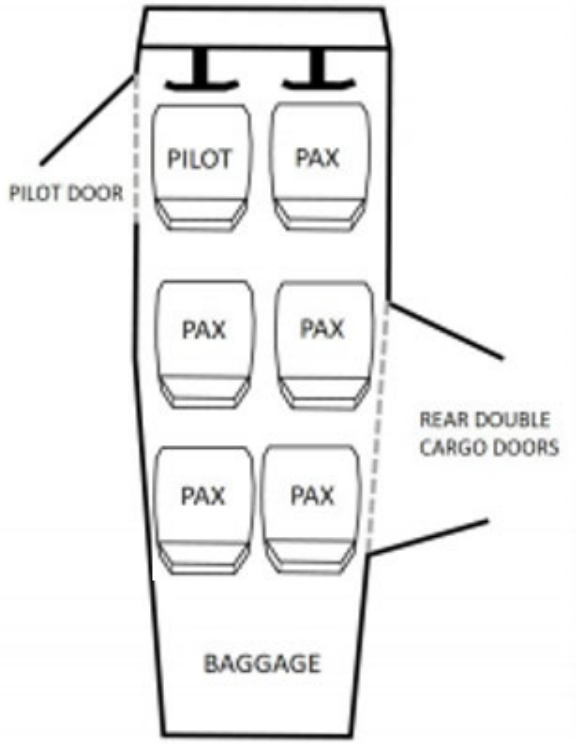


Source: Pilot, annotated by the ATSB

Cabin layout and exits

VH-TDQ was operated in a 6-person configuration with 2 front row (pilot) seats, 2 middle row seats and 2 rear seats (Figure 5).

Figure 5: Cessna 206 standard cabin seating configuration



Source: TSB investigation report A18W0129, adapted by ATSB to match occurrence aircraft

VH-TDQ included 2 emergency exits, the pilot's forward left cabin door and a double 'clam shell' style cargo door located at the rear right of the aircraft cabin. Passengers seated in the middle row seats are able to access the pilot's forward left door when the pilot's seat is moved into a forward position. The forward part of the cargo door overlaps the rear cargo door as a preventative measure to stop the rear door (rear hinged) from opening in flight and damaging the aircraft. The rear cargo door cannot be opened independently of the front cargo door.

Wing flap extension greater than 10° results in the flap blocking the forward part of the cargo door (Figure 6) and restricts the opening to about 8 cm. When the aircraft wing flaps remain extended, the forward cargo door must be opened as far as possible to then allow the rear door to be opened. Further detail is discussed below in *Cessna 206* rear passenger emergency egress.

Figure 6: Cessna 206H showing extended flap blocking forward cargo door

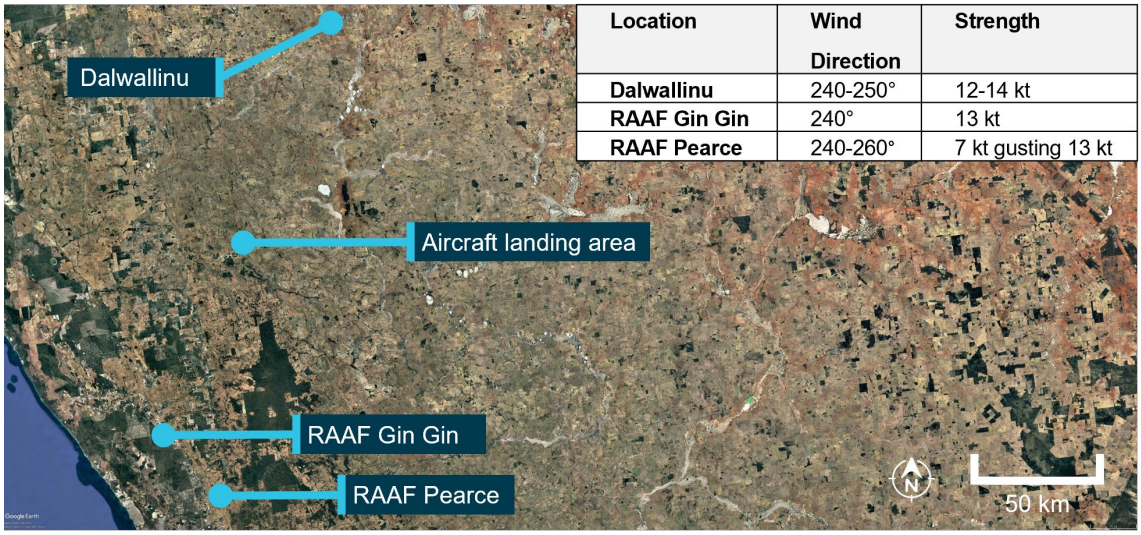
Source: ATSB

Meteorological information

The pilot reported that they assessed the local weather conditions via their NAIPS[4] account on the morning of the occurrence flight and recalled that the predicted wind at the aircraft landing area (ALA) was calm.

Bureau of Meteorology data from the nearest recorded locations at the time of the occurrence indicated local winds between 12–14 kt in a south-westerly direction (Figure 7).

Figure 7: Weather reporting locations in relation to the private aircraft landing area



Location	Wind Direction	Strength
Dalwallinu	240-250°	12-14 kt
RAAF Gin Gin	240°	13 kt
RAAF Pearce	240-260°	7 kt gusting 13 kt

Source: Google Earth, annotated by the ATSB

[4] NAIPS: National Aeronautical Information Processing System

Aeroplane landing area information

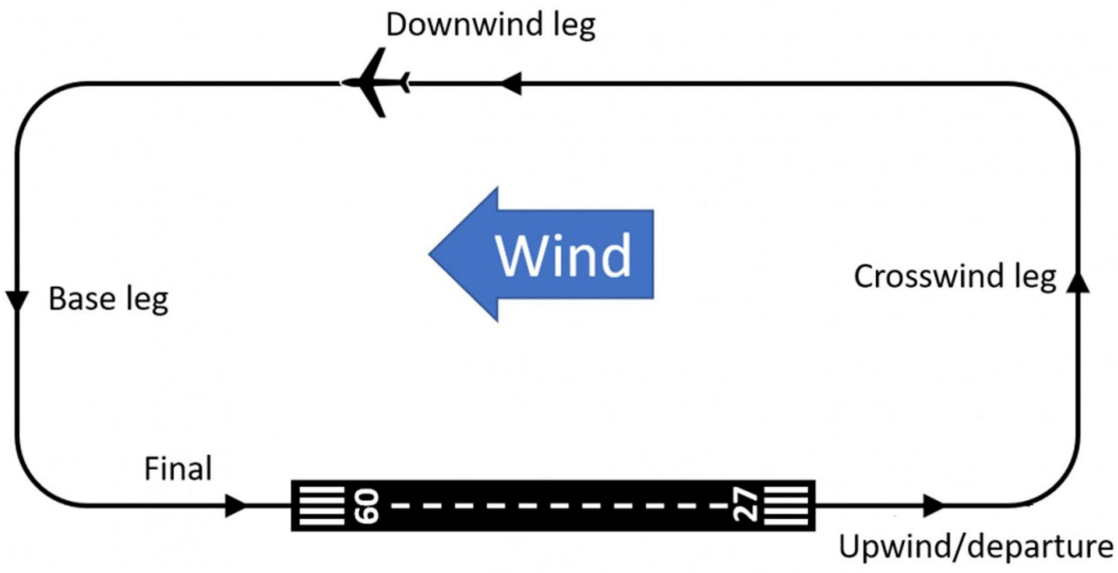
The ALA was on privately-owned farming land and was regularly used by agricultural pilots to conduct spraying of crops in the local area. The elevation of the ALA was about 800 ft above mean sea level (AMSL) and the runway orientation was about 120/300°[5] and had a gradual slope that increased towards the east, rising about 40 ft over the length of the runway. It was surrounded by waist-high crops, had a gravel surface and a useable length of about 570 m. The ALA did not have a windsock, nor was there a wind indicating device located nearby.

Prior to operating at the ALA, the operator spoke with the landowners to gain understanding of the recent landing area conditions, as they had not flown to the location previously. They were put in contact with the agricultural pilots who had been recently operating from the field and received a landing area condition report. The operator assessed that the area was suitable for the Cessna 206.

Standard circuit pattern

A circuit is the specified path to be flown by aircraft operating in the vicinity of an aerodrome (Figure 8). It comprises of upwind, crosswind, downwind, base and final approach legs.

Figure 8: Standard left-hand circuit pattern



Source: SKYbrary, modified by the ATSB

The Civil Aviation Safety Authority (CASA) Advisory Circular AC 91-10v1.3 advised pilots that joining a base leg of a circuit is not a standard procedure. Stating:

> CASA recommends that pilots join the circuit on either the crosswind (midfield) or downwind leg. However, pilots who choose to join on base leg should only do so if they have familiarised themselves with the weather conditions to be expected and aerodrome serviceability.

The AC advised that pilots who join the base leg of the circuit increase the risk of a downwind landing and may conflict with other traffic using the into-wind runway. It also

[5] Runway direction indicating a magnetic heading.

stated that late go-around decisions and landings on a closed runway were more common.

Recorded data

Flight Radar 24 data[6] indicated that when the pilot commenced the left-hand orbit approaching the ALA, that the aircraft was about 2,000 ft AMSL and at the conclusion of the orbit, as the aircraft joined the base leg, it remained at about 2,000 ft AMSL, about 1,200 ft above the ALA. As the aircraft became established on final approach for the easterly runway, the aircraft height was recorded as 1,500 ft AMSL, 700 ft above the ALA and 1.6 NM from the runway threshold.

Flight Radar 24 showed that the aircraft's ground speed had slowed to around 75 kt on the base leg of the approach to landing. As the aircraft turned onto final approach the ground speed increased, reaching 92 kt and indicated about 85 kt ground speed at the last data recording on short final for the easterly runway.

Video footage from a passenger seated in the rear left seat was obtained by the ATSB. Video footage showed that the initial touchdown point (Figure 2) was about 80 m past the runway threshold, reducing the remaining runway length to about 490 m. The footage also showed that during the go-round, the aircraft began to lose height shortly after the flaps were retracted and that this was followed by a roll to the right.

Operator's internal review

On the day of the accident, the operator's chief pilot attended the accident site, gathered images, reviewed the aircraft damage and debriefed with the pilot.

The chief pilot advised that post-accident aircraft testing was carried out later that day and the flaps were tested and found to be operational.

From the pilot's report, flight data and images gathered, the operator completed a detailed internal review of the accident. A summary of the findings included:

- the aircraft's approach became unstable due to the excess speed
- the speed was more appropriate for a 20° flap setting
- the excess speed likely resulted in the aircraft 'floating' and landing long on the runway
- after an initial bounce on landing the pilot continued the approach to land before a second bounce
- inadvertent incorrect flap setting reduced the aircraft climb performance.

Cessna 206 procedures

Unstable approach procedure

The Cessna 206F aircraft flight manual (AFM) advised pilots that the approach speed for a full-flap, short field landing should be 75 mph (65 kt).

The operator's exposition stated that the airspeed for the stabilised approach criteria below 1,000 ft is not more than VREF[7] (65 kt) + 5 kt.

---

[6] Flight Radar 24 height data is accurate to within 100 ft.

[7] VREF: landing reference speed.

Data from Flight Radar 24 showed the aircraft ground speed had slowed to 75 kt on the base leg of the circuit, before increasing to 92 kt ground speed on final approach. The pilot reported the airspeed on final was 75 kt prior to selecting full flap for the landing.

Go-around procedure

The Cessna 206F AFM emergency section provided the balked landing (go-around) procedure:

Power – Full throttle and 2850 RPM

Wing Flaps – Retract to 20°

Airspeed 90 MPH (78 kt)

Wing flaps – Retract slowly

Cowl flaps – Open.

Additionally, the AFM provided further detail when conducting a go-around:

> In a go-around climb, the wing flap setting should be reduced to 20° immediately after full power is applied. After all obstacles are cleared and once a safe altitude and airspeed are obtained, the wing flaps should only then be retracted further.

On initiating the go-around the pilot inadvertently reduced flap to the 10° setting resulting in a reduction of lift produced by the wing.

Ditching and forced landing procedure

The Cessna 206 ditching and forced landing procedure described in the AFM instructed pilots to configure the aircraft to the full-flap position so as to impact with water or terrain at the slowest possible speed. This procedure did not mention the retraction of the flaps on completion of the ditching or forced landing

Operator's passenger safety briefing

The operator's exposition stated that pilots shall brief passengers about the following matters and confirm they have an understanding:

- the pilot in command is responsible for passenger safety
- safety instructions and directions from the pilot in command must be followed
- smoking tobacco, electronic cigarettes or any other substance on the aircraft is prohibited
- when seatbelts are to be worn, and how to use them
- seat backs are to be upright during take-off and landing
- how and when to adopt the brace position
- how to approach and move away from the aircraft
- entry and egress from the aircraft, including in emergency situations
- where and how to stow baggage and personal effects
- use of survival equipment / ELT as appropriate
- use of life jackets and life rafts (if carried for the operation) and that life jackets must not be inflated inside the aircraft
- restriction on the use of PEDs (personal electronic devices) and when they can be used
- communications and headset use

- if the passenger is in a flight crew seat, the requirement to ensure controls are not manipulated or interfered with
- the location of the Safety Briefing Card located at each seat.

The pilot recalled that they conducted a group briefing of the passengers prior to the first planned local area flight, with the intention of providing the passengers for the second flight an additional briefing before they boarded.

The pilot reported they briefed the passengers on the aircraft's seatbelts, location of the fire extinguisher, life jackets, first-aid kit and provided instruction to the front seat passenger regarding remaining clear of the flight controls. They also explained the use of both the forward left cabin door and the double cargo emergency exit doors, highlighting the red handle to open the rear cargo door. The pilot did not indicate that the passengers were briefed on actions in the event of the emergency exit being obstructed.

The adult passenger seated in the rear seat recalled seeing the handle for the forward cargo door, however they were unsure if the rear cargo door had a handle. As discussed (*see Cessna 206 rear passenger emergency egress)*, the emergency handle is not readily visible from the rear seats in older Cessna 206 aircraft when the cargo doors are closed.

Regulatory information on emergency egress

The Cessna 206 was first certified in 1963 by the United States (US) Federal Aviation Administration (FAA). FAA regulation 14 CFR 23.2315 stated that an aeroplane is designed to:

> (a)(2) Have means of egress (openings, exits, or emergency exits), that can be readily located and opened from the inside and outside. The means of opening must be simple and obvious and marked inside and outside the airplane.

There have been a number of revisions made to this FAA design standard over the years. However, once an aircraft has been certified, the design standard under which it was certified continues to apply.

Part 90 of Civil Aviation Safety Regulations (CASR) 1998 - *Additional airworthiness requirements* Subpart 90.005 sets out the airworthiness requirements for an aircraft that are in addition to the type certification basis for the aircraft.

Under regulation 90.020 of CASR 1998, the Manual of Standards (MOS) sets out the additional airworthiness standards required for CASR Part 90 including, access to emergency exits.

Part 90 of the MOS stated that the minimum opening of an emergency exit must be unobstructed at all times.

CASR 90.135 stated that each passenger must have access to at least one exit that meets the requirements prescribed by Part 90 of the MOS.

Cessna 206 rear passenger emergency egress

Background

When configured as a 6 seat-passenger aircraft, the cargo door provided the closest emergency exit for passengers seated in the rear seats and an alternate exit if the pilot's left front cabin door became obstructed.

As discussed above in *Aircraft information*, when the flaps are extended, they physically block the forward cargo door from being opened beyond about 8 cm, not enabling egress.

The internal forward cargo door handle has 3 positions:

- when the lever is horizontal (with the lever facing forward), the door is locked
- turned clockwise 90° to the vertical position, the door is closed
- turned clockwise another 30°, the door is opened.

With the forward door handle in the locked position the door is unable to be opened from the outside. The pilot reported that the rear seat passengers attempted to open the forward cargo door, however due to the extended flap were unable to push the door open. As the passengers were unaware of the location of the rear door handle (see *Operator's passenger safety briefing*), no attempt was made to open the rear cargo door.

For the earlier models (pre-H model), including VH-TDQ, the rear door handle is a red lever (Figure 9) located in the leading edge of the rear door, which is rotated forward (to horizontal position) to open. When the forward cargo door is blocked by the flaps and the rear door handle is in the horizontal position, the rear door can only be partly opened as the horizontal handle cannot pass the forward door. The handle must then be re-stowed in the vertical position to allow the rear cargo door to pass the obstructed forward cargo door. In an emergency situation, this can and has delayed or prevented egress from the aircraft. Once the forward cargo door is slightly opened, it is possible to access the rear door handle from outside the aircraft and open the door using this process.

The pilot advised the ATSB they were aware that the forward cargo door became blocked with the flaps in an extended position. They also advised that they were aware of the requirement to open the forward cargo door before the rear door could be opened and understood the operation of both the cargo door handles. However, the pilot believed that when the flaps remained extended and blocked the forward cargo door, that the rear cargo door was unable to be opened.

The operator's chief pilot also reported that if the forward cargo door was blocked by the flap that passengers would be forced to egress the aircraft via the pilot's forward left cabin door, which would be difficult for passengers seated in the rear seats.

Figure 9: Cessna U206G Cargo door

Source: TSB investigation report A18W0129, annotated by the ATSB

Cessna 206F aircraft flight manual

The emergency section of the aircraft's flight manual contained instructions for the operation of the cargo door emergency exit which stated:

> If it is necessary to use the cargo door as an emergency exit and the wing flaps are not extended, open the forward door and exit. If the wing flaps are extended, open the door in accordance with the instructions on the placard [see Figure 10] which is located on the forward cargo door.

Cessna cargo door latch service bulletin

In 1991, to assist in operating the rear cargo door from inside the aeroplane during night operations, Cessna issued Service Bulletin SEB 91-4 *Cargo door latch improvement.* The service bulletin recommended the installation of a return spring in the rear cargo door handle, automatically returning the handle to the closed position after opening. This assisted the rear cargo door to move freely past the blocked forward cargo door.

The service bulletin was not mandatory and was not installed on VH-TDQ.

Placard alternative

Prior to the service bulletin, due to demonstrated difficulties opening the cargo doors when the aircraft flaps remained extended during emergency situations in both Australia and overseas, the Civil Aviation Authority (CAA)[8] issued Airworthiness Directive 206/47 in 1988 that required the improvement of existing emergency exit placards for Cessna 206 aircraft in Australia (Figure 10). The placard drew attention via bold letters to step 3,

[8] The CAA became CASA in 1995.

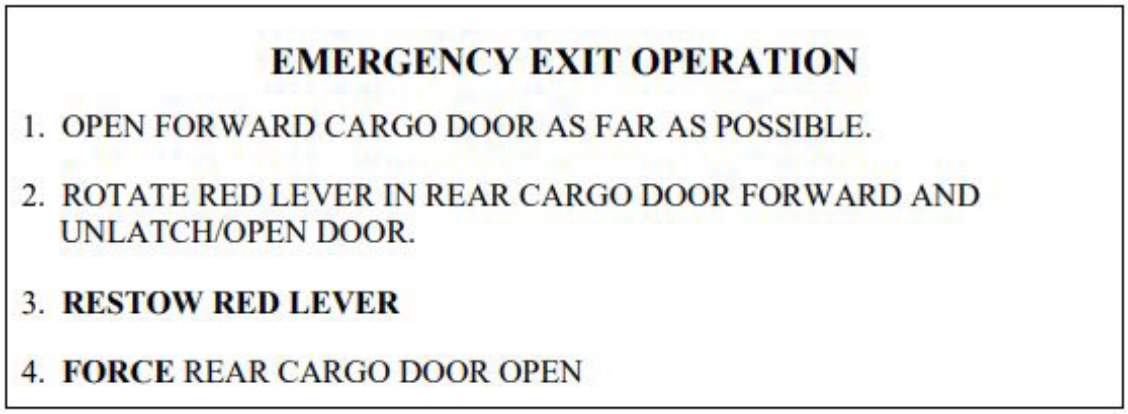
to ensure the rear door handle was returned to the original position (vertical) before attempting to open the rear door (step 4).

In 1991, when Cessna issued Service Bulletin SEB 91-4, the CAA issued Airworthiness Directive Cessna 206/47 amendment 2, which allowed SEB 91-4 to be an alternate means of compliance to the CAA emergency exit placarding.

In 2011, CASA subsequently issued Airworthiness Directive Cessna 206/47 amendment 3, which clarified which Cessna 206 models the airworthiness directive applied to. This was due to SEB 91-4 being incorporated by the manufacturer in some newer models, and because other models did not have the cargo door. SEB 91-4 remained as an alternate means of compliance.

The placard was installed on VH-TDQ.

Figure 10: Forward cargo door placard



Source: CASA Airworthiness Directive 206/47 Amendment 3

Canadian type certificate and airworthiness directive

In 1998, Cessna resumed manufacturing the 206 model aircraft with the 206H. The H model featured larger and more visible cargo door handles and incorporated SEB 91-4 for the return spring in the rear cargo door handle into the design. The forward cargo door remained blocked with flaps extended on this variant.

The 206H was certified under the US Federal Aviation Regulations 23.807. Transport Canada (TC) disagreed with the certification, stating that:

> The design of the doors did not satisfy the (FAA) certification requirements that the method of opening the doors be simple and obvious and the door be readily opened, even in darkness.

As a result, in 2000 TC issued a type certificate reducing the Cessna 206H occupancy to 5 passengers.

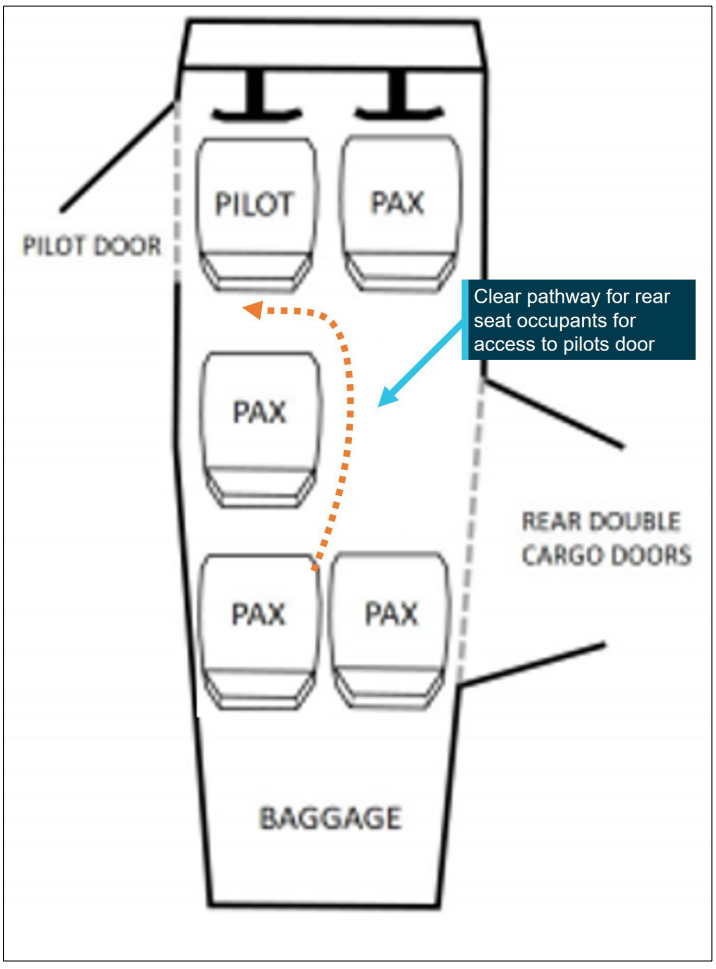
In 2019, the Transport Safety Board of Canada issued safety advisory A18W0129-D1-A1 that stated that between 1999 and 2003, TC, the FAA and Cessna, had worked together in an effort to come up with a design change that could be applied to the Cessna 206H, which could also be used to retrofit older models of the Cessna 206 fleet. However, the matter remained unresolved and no acceptable solution was found.

In 2020 TC issued Airworthiness Directive CF-2020-10, applicable to Cessna 206 models that featured the double cargo door, stating that:

> Earlier versions of the model 206 registered in Canada that feature the cargo doors have not been subject to occupancy limits, other limitations or corrective action requirements related to the cargo doors. These earlier versions of the model 206 have continued to operate in Canada without corrective or mitigating action despite the fact that the method of opening the cargo doors is essentially the same as the method for the 206H and T206H models. There is objective evidence that difficulty opening the cargo doors has contributed to fatalities during accidents in Canada involving the model 206.

The AD CF-2020-10 limited earlier model Cessna 206 to 5 occupants and required the removal of one of the middle row seats if either rear seat was to be occupied. The removal of a middle row seat provided access for passengers seated in the rear seats to the pilot's forward left cabin door (Figure 11) for evacuation in the event the rear cargo door could not be opened quickly enough for egress. The AD also clearly stated that the vacant space left by the removal of a middle row seat must not be used for storage of cargo or baggage.

Figure 11: Seating configuration for Canadian Cessna 206



Source: TSB investigation report A18W0129, adapted to indicate seat removal, annotated by the ATSB

The AD also provided an alternative means of compliance through a supplemental type certificate (STC),[9] STC SA1470GL, for the installation of an additional door, on the forward right side of the cabin and was applicable to all models of the Cessna 206. This commercially available alternative means of compliance allowed Canadian registered aircraft to remain in the original 6-seat configuration. If installed, the additional door provided immediate egress option for the passenger in the front right seat and an additional emergency egress for passengers seated in the middle row.

Australian acceptance of type certificate and supplemental type certificates

Since 1990 CASA has provided for the automatic acceptance of foreign aircraft type certificates and STC's issued by a national aviation authority of recognised countries[10] including European Union Aviation Safety Agency (EASA).

CASA has accepted the type certificate of the national aviation authority issuing state (United States), for the following models of the Cessna 206: 206, P206, P206A, P206B, P206C, P206E, U206, U206A, 206H, U206B, U206C, U206D, U206E, U206F, U206G, T206H, TU206A, TU206C and TU206G (P206 models are not manufactured with the double cargo door).

ATSB safety recommendation

In 2020, after ATSB investigation (AO-2020-010), into an accident involving a Cessna U206G on Fraser Island, Queensland, the ATSB issued CASA with safety recommendation AO-2020-010-SR-018 recommending that CASA take safety action to address the certification basis for the design of the cabin doors in the Cessna 206, as wing extension beyond 10° will block the forward portion of the rear double cargo door, significantly hampering emergency egress.

In response CASA issued Airworthiness Bulletin 52-006 in 2021, with a subsequent reissue in 2025. The bulletin advised pilots and operators of the impeded access from the cargo door emergency exit with the flaps extended and made recommendations that:

- Pilots should be aware that lowering the flaps may obstruct this exit and significantly increase the difficulty of opening the forward door section of the rear cargo door. All passenger pre-flight briefings should include a practical demonstration of how to open and egress the aircraft through a flap obstructed cargo door. This will require a demonstration with flaps lowered to at least 20 degrees to demonstrate the condition. Care should be taken to not damage the flap or door during this demonstration.
- Additionally, in the event that an emergency landing or water ditching is required, pilots should consider retracting the flaps if possible after the emergency landing or if operationally feasible, limit the amount of flap extension to a maximum of 10 degrees. This would of course be a judgement made by the pilot in command based on operational factors, severity of the emergency/damage to aircraft and if there are occupants seated in the rear of the aircraft.
- It is strongly recommended that registered operators and operators of affected Cessna 206, T206, TU206 and U206 aircraft series, review TC AD CF-2020-10 and give due consideration to compliance with the intent of this document, however compliance is not mandatory under CASR Part 39, because the AD is not from the state of design.

---

[9] A supplementary type certificate (STC) is a form of regulatory approval of the design of a major modification, or collection of changes, to a type certificated aircraft, aircraft engine or propeller.

[10] Recognised countries include Canada, Federal Republic of Germany, New Zealand, The French Republic, Kingdom of the Netherlands, The United Kingdom and The United States of America.

The ATSB investigation also issued Cessna a safety recommendation AO-2020-010-SR-017. The safety recommendation was to address the concern that although the Cessna 206 AFM ditching procedure required pilots to extend the flaps to the full-flap position, which resulted in a slower landing speed, this significantly impeded the emergency egress via the cargo door emergency exit and there was no warning in the AFM of the additional risk. In response, Cessna provided a temporary revision to only the Cessna 206H model AFM, providing a warning stating:

> FLAP POSITIONS OF 10 DEGREES OR GREATER MAY IMPEDE EVACUATION FROM THE CARGO DOOR. FAILURE TO ADHERE TO ALL SAFETY INSTRUCTIONS CAN RESULT IN BODILY INJURY OR DEATH.

Cessna advised the warning would be incorporated into the next revision of the Cessna 206H AFM and a placard, with the same warning would be produced for older Cessna 206 models that featured the double cargo doors. In November 2024, mandatory service bulletin SEB-11-05 was released for all Cessna 206, and U206 models prior to the 206H, for the installation of the placard on the cockpit instrument panel or another location directly visible to the pilot. The service bulletin had not been released at the time of the occurrence.

Cessna 206 modifications to allow cargo door to open with flaps extended

Since the release of AD CF-2020-10, in 2020 TC also approved STC SA20-34 which allows the forward cargo door corner to be hinged (Figure 12). This allows the door to fold on a hinge and fully open with flap extended in any position and therefore creating no restriction to the rear cargo door.

Figure 12: Cessna split cargo door

Source: Coast Dog Aviation, annotated by the ATSB

Additionally, on 2 May 2023, TC approved STC SA23-21 to provide an additional handle that is installed internally on the forward cargo door. The handle is accessible to the rear seat passengers, which, when activated jettisons the front cargo door from the aircraft. The removal of the door provided egress to the middle row occupants when flaps remained extended. The release of the door from the aircraft also improved visibility of the rear cargo door handle and simplified opening the rear cargo door for occupants seated in the rear seats.

Both STC SA20-34 and STC SA23-21 are approved as alternative means of compliance to TC CF-2020-10 and allowed Canadian registered aircraft to retain the 6 seat configuration.

VH-TDQ was not modified with the approved STC's for the cargo door and a second forward right side door was not fitted (STC SA1470GL) and the aircraft remained in the original 6 seat configuration.

Related occurrences

ATSB conducted a search of aviation investigation databases and other sources to identify accidents involving Cessna 206 aircraft (Appendix 1 – Cessna 206 occurrences). This search specifically looked at accidents where the impact was considered likely survivable, however where difficulties opening the cargo door resulted in significant delays during the emergency egress, or the cargo door had not been opened.

The ATSB identified 10 occurrences that included 23 fatalities between 1985 and 2020 globally. Highlighted during the search were multiple occurrences of Cessna 206 accidents that involved fatalities when Cessna 206 aircraft were equipped with floats and operated on water.

In March 1999, near Pitt Island, New Zealand, a Cessna 206 had an engine failure and ditched in the sea. The pilot was aware of the issue with the extended flap blocking the cargo doors and ditched the aircraft with the flaps retracted. Consequently, all the occupants escaped from the aircraft and swam to shore (New Zealand Transport Accident Investigation Commission, investigation report 99-001) .

In January 2020, during a landing at a beach landing area on Fraser Island, Queensland, the Cessna U206G aircraft veered significantly to the left. Once airborne it was identified that the rudder was jammed in the full-left position and the pilot had to apply full opposite aileron to maintain control. Shortly after, possibly due to fuel starvation the aircraft collided with water. Unable to open the pilot's door the trainee pilot kicked the cargo door to force it open past the extended flap (ATSB investigation AO-2020-010).

Safety analysis

Introduction

On the morning of 1 September 2024, the pilot of a Cessna U206F, registered VH-TDQ, departed a private aircraft landing area (ALA), 21 NM (39 km) southeast of Moora, Western Australia (WA) with 5 passengers on board for a 15-minute local area flight. On return to the ALA the pilot conducted a full flap landing on the easterly runway and bounced twice. The pilot then commenced a go-around, however as the aircraft began the initial climb, the pilot inadvertently reduced the flap setting 10°. The aircraft lost height and the right wing dropped, making contact with terrain, removing the right wing tip and damaging the right aileron. The aircraft then lost speed and landed upright in a field adjacent to the runway.

Unstable approach

As the pilot approached the ALA and was about 2 NM (3.7 km) north, they assessed that the aircraft was too high and elected to conduct a left orbit with the intention of reducing the aircraft's height. However, no reduction in height was recorded during the orbit.

The pilot conducted a non-standard approach to the easterly runway by joining the circuit on a base leg. This resulted in a reduction of available time for the pilot to assess the vertical descent profile effectively and likely contributed to the pilot mis-managing the short field landing with additional speed and height on the final approach.

Contributing factor

The pilot conducted a non-standard base leg join to the circuit for landing. This reduced the time available for the pilot to configure the aircraft, reduce the airspeed and prepare for a short field landing.

A combination of additional speed on final approach, the effects of a tailwind and the aircraft in the full-flap landing configuration, likely extended the aircraft's flare. This resulted in the aircraft landing past the intended touchdown point. This also contributed to the aircraft bouncing on landing and further reduced the runway available to safely stop and likely resulted in the pilot‘s decision to go-around.

Contributing factor

Due to excessive speed on approach for a full flap, short field landing, the aircraft landed long and bounced twice.

Go-around

After the aircraft bounced a second time, the pilot commenced a go-around and applied full power to climb away. As the aircraft increased speed and began the climb out, the pilot intended to reduce the flap setting to 20° to reduce drag, but inadvertently reduced

the flap setting to 10°. This resulted in a flap configuration below the prescribed setting for the aircraft's balked landing (go-around) procedure.

The aircraft had not achieved the required airspeed for the lower than intended flap setting and this developed into a lack of sufficient lift and a loss of climb performance. This resulted in the aircraft losing height and directional control which caused right wingtip contact with the ground.

Contributing factor

The pilot mis-selected the flap setting during the attempted go-around. As a result, the aircraft could not achieve adequate climb performance.

Passenger evacuation

After the aircraft came to a stop, the pilot instructed the passengers to evacuate. The front seat passenger and middle row passengers were able to egress through the pilot's forward left cabin door. However, due to the flaps remaining extended in the 10° position, the forward half of the right-side cargo door (emergency exit) could not be fully opened. While the rear cargo door could have been opened (either from the inside or the outside), the blocking of the forward door increased the difficulty of opening the rear cargo door and caused confusion about how to evacuate the rear seat passengers.

From the inside, the rear door handle was not easily visible to passengers in the rear seats due to its obscured position and location relative to the middle row seats and the forward cargo door only able to be partially opened. Although the pilot reported providing a safety briefing to the passengers, and an aircraft placard provided instructions for the operation of the cargo door emergency exit when the flaps remained in an extended position, the adult rear seat passenger was not fully aware of the location of the rear cargo door handle.

Due to the forward cargo door being blocked by the extended wing flaps, and a rear door handle that was not easily accessible to the pilot outside the aircraft and not easily visible to passengers in the rear seats, the 2 rear seat passengers could not enact the opening of the rear emergency exit, and ultimately were required to climb over the middle row seats and egressed via the pilot's forward left cabin door.

While this delayed a timely evacuation, in this case the rear passengers were an older adult and a young child but both capable of climbing over seats, and the pilot was able to assist from outside the aircraft. However, in emergency situations where the passengers may be less able-bodied or the pilot is incapacitated or unable to assist, the functioning of aircraft emergency exit systems must be quickly apparent and passengers must have enough awareness of their operation to ensure timely and unassisted evacuation.

Other factor that increased risk

With the flaps extended in the 10° position when the aircraft came to rest blocking the full opening of the forward cargo door, the rear seat passengers were unable to open the rear cargo door to enable an emergency exit.

In this case, there was an additional chance to evacuate via the rear emergency exit as the pilot could walk around to the outside of that exit.

As pilots of small passenger aircraft are responsible for the emergency egress of passengers, it is essential that the pilot has a full understanding of the operation of the emergency exits. Instructions for the operation of cargo door emergency exit when the flaps remained in an extended position were available on an aircraft placard.

The pilot understood that the operation of the rear cargo door was reliant on the forward door being open, and was also aware that extended flaps may block the forward cargo door. However, the pilot was unaware the rear cargo door could be opened after the forward cargo door had been made ajar (blocked by flaps). As a result, the pilot first tried (unsuccessfully) to retract the flaps, even though this was not required to open the rear cargo door. When that failed, likely due to the door remaining ajar preventing the micro-switch activation of power to the flap system as designed, the pilot instructed the occupants to egress via the forward cargo doors over the middle row seats.

In this case, as the aircraft was not on fire nor floating on water, this lack of knowledge did not result in a worse consequence. However, in other circumstances, the inability to egress rear seat passengers from the rear emergency exit could have serious consequences.

Other factor that increased risk

The pilot was unaware that the rear cargo door on the Cessna 206 could be opened from the outside when the front cargo door was blocked by the extended flaps.

Previous ATSB and international investigations have highlighted the difficulty occupants of the Cessna 206 face egressing via the cargo door emergency exit when the aircraft flaps remain extended. While it is possible to open the rear cargo door from outside the aircraft when the forward door is blocked by the extended flaps, without training or demonstration the process is not simple or obvious. The pilot had limited experience on the aircraft type and was unaware of the process.

Although CASA Airworthiness Bulletin 52-006 advised operators to brief passengers on emergency egress with flaps blocking the forward cargo emergency exit, the chief pilot also was unaware it was possible to open the rear cargo door when the forward cargo door was blocked by the flaps. This meant that they were unable to educate company pilots on the additional complexity operating the rear cargo door with flaps extended.

Although the company operations manual stated that pilots were required to brief passengers entry and egress from the aircraft, including in emergency situations, the operator did not provide further documentation to pilots that the passenger briefing should also demonstrate the cargo door operation with the flaps extended as recommended by CASA Airworthiness Bulletin 52-006.

The knowledge involved to demonstrate this would have provided the pilot with the correct understanding of the operation of those doors as was needed in this case. Further, had such a demonstration been conducted, it is likely that passengers seated in

the rear of the aircraft would have also been aware of the location of the rear cargo door handle and process when the flaps remained extended.

Passenger briefings therefore lacked in this regard, and in an emergency event where passengers were required to open the rear cargo/emergency doors quickly with the flaps extended, this increased the risk that the rear seat passengers would not be able to egress at all or quickly enough to escape injury.

Other factor that increased risk

The operator's pre-flight passenger briefing did not include the demonstration of, and pilots were not trained how to operate, the emergency exit via the cargo door with the flaps extended. (Safety Issue)

Safety advisory notice

The Australian Transport Safety Bureau advises Cessna 206 pilots and operators that due to the difficulties occupants have encountered egressing the rear cargo door as identified in several transport safety investigations, to ensure they are familiar with CASA-issued Airworthiness Bulletin 52-006, and ensure passengers are provided with a thorough safety briefing demonstrating the cargo door emergency egress when the wing flaps remain in the extended position.

Cessna 206 emergency egress

The Cessna 206 cargo door emergency exit has featured in numerous transport safety investigations across the world. To date, Transport Canada remains the only regulatory body that has made significant changes that improve the ease of use during an emergency.

Transport Canada's decision to issue an amended type certificate for the Cessna 206H when production was restarted, limited the aircraft to 5 occupants, with the required removal of a middle row seat if either rear seat was to be occupied. The subsequent release of the airworthiness directive CF-2020-10 mandated the same limitations and meant that occupants of older model Cessna 206 aircraft, particularly those seated in the rear seats, had improved access to the pilot's forward left cabin door emergency exit. The removal of the middle row seat also improved the visibility and access to both cargo door handles for middle and rear seat occupants.

The Civil Aviation Safety Authority (CASA) required that the aircraft emergency exits remain unobstructed at all times. Passengers seated in the rear seats of the Cessna 206 with the double cargo door are obstructed by either:

- the middle row seats, when attempting to access the pilots forward left cabin door
- the flap blocking the forward cargo door when the flaps remain extended.

The majority of aircraft accidents happen during take-off or approach and landing phases of flight. During normal operation, these phases of flight usually require an amount of flap

extension, therefore it becomes likely that, in the event of an accident or incident, the flaps would remain extended and hinder the use of the cargo door emergency exit.

Previous investigations into the Cessna 206 that included fatalities of pilots who had a required knowledge of the use of an emergency exit, have found that the extended flaps blocking the cargo door contributed to the occupant's inability to exit the aircraft during emergency egress.

The successful ditching of a Cessna 206 in New Zealand in 1999 indicated the increased occupant survivability potential when both emergency exits are clear of any obstruction.

Transport Canada has approved several modifications that provided an exemption to the occupancy limitations set out by the type certificate and airworthiness directive. This allowed the aircraft to maintain its intended 6 passenger configuration. The modifications are commercially available and improve the functionality of the emergency exits and provide access to an alternative or unobstructed emergency exit with the flaps extended.

The extended flap blocking the forward cargo door has contributed to fatalities in previous accidents. The Cessna 206 ditching and forced landing procedure both prescribe a full-flap landing. However, unless the pilot is able to retract the flaps after the ditching or landing, the flaps would remain extended blocking the forward cargo door.

Transport Canada's required restriction of the Cessna 206 occupancy, or the approved emergency exit modifications, reduces the risk created by the extended flaps preventing the immediate and unobstructed use of the rear cargo door emergency exit. This significantly improves the occupant's likelihood of successful egress, during an emergency.

In Australia, CASA has provided warnings regarding the obstruction of the emergency exit and strongly recommended operators to comply with the changes that Transport Canada made. However, the aircraft's certifying state (United States) has not mandated these changes.

The ATSB and international transport safety investigations have highlighted the increased difficulty faced by occupants attempting to egress the Cessna 206 when the flaps remain extended. Existing approved emergency exit modifications are available to reduce the risk created by the extended flap preventing the immediate and unobstructed use of the rear cargo emergency exit.

The approved modifications for the cargo door emergency exit would likely have resulted in occupants of the rear seats successfully opening the forward cargo door and therefore improving the ease of operation of the rear cargo door handle for the occupants or pilot. Alternatively, with a middle row seat removed, rear seat occupants' path to the forward left cabin door would have been unobstructed.

Other factor that increased risk

The aircraft did not have the modifications detailed by CASA for Cessna 206 emergency exits, increasing the likelihood of impeded egress during emergency situations. (Safety Issue)

Safety advisory notice

The Australian Transport Safety Bureau strongly encourages operators and owners review Transport Canada Airworthiness Directive CF-2020-10, and consider either the removal of a middle row seat to improve rear seat occupants' access to the pilot's forward left cabin door or the fitment of approved Cessna 206 emergency exit modifications to reduce the risk created by the extended flap preventing the immediate and unobstructed use of the rear cargo doors during an emergency exit.

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.

Safety issues are highlighted in bold to emphasise their importance. A safety issue is a safety factor that (a) can reasonably be regarded as having the potential to adversely affect the safety of future operations, and (b) is a characteristic of an organisation or a system, rather than a characteristic of a specific individual, or characteristic of an operating environment at a specific point in time.

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 collision with terrain during go-around involving Cessna U206F, VH-TDQ, 39 km south-east of Moora, Western Australia, on 1 September 2024.

Contributing factors

- Due to excessive speed on approach for a full flap, short field landing, with a tail wind component, the aircraft landed long and bounced twice.
- The pilot conducted a non-standard approach to the landing area by conducting a base leg join to the easterly runway which had a gradual upslope. This reduced the time available for the pilot to configure the aircraft, reduce airspeed and prepare for a short field landing.
- The pilot mis-selected the flap setting during the attempted go-around. However, the aircraft could not achieve adequate climb performance.

Other factors that increased risk

- The aircraft did not have the modifications recommended by CASA for Cessna 206 emergency exits, increasing the likelihood of impeded egress during emergency situations. (Safety issue)
- The operator's pre-flight passenger briefing did not include the demonstration of, and pilots were not trained how to operate, the emergency exit via the cargo door with the flaps extended. (Safety issue)
- The pilot was unaware that the rear cargo door on the Cessna 206 could be opened from the outside when the front cargo door was blocked by the extended flaps.
- With the flaps extended in the 10° position when the aircraft came to rest blocking the full opening of the forward cargo door, the rear seat passengers were unable to open the rear cargo door to enable an emergency exit.

Safety issues and actions

Central to the ATSB's investigation of transport safety matters is the early identification of safety issues. The ATSB expects relevant organisations will address all safety issues an investigation identifies.

Depending on the level of risk of a safety issue, the extent of corrective action taken by the relevant organisation(s), or the desirability of directing a broad safety message to the Aviation industry, the ATSB may issue a formal safety recommendation or safety advisory notice as part of the final report.

All of the directly involved parties are invited to provide submissions to this draft report. As part of that process, each organisation is asked to communicate what safety actions, if any, they have carried out or are planning to carry out in relation to each safety issue relevant to their organisation.

The initial public version of these safety issues and actions are provided separately on the ATSB website, to facilitate monitoring by interested parties. Where relevant, the safety issues and actions will be updated on the ATSB website as further information about safety action comes to hand.

The operator's pre-flight passenger briefing

Safety issue description

The operator's pre-flight passenger briefing did not include the demonstration of, and pilots were not trained how to operate, the emergency exit via the cargo door with the flaps extended.

Issue number:	AO-2024-049-SI-01
Issue owner:	Fly Esperance PTY LTD
Transport function:	Aviation: General aviation
Current issue status:	Open –Safety action pending

Proactive safety action taken by Fly Esperance Pty Ltd

Action number:	AO-2024-049-PSA-01
Action organisation:	Fly Esperance PTY LTD
Action status:	Monitor

Fly Esperance Pty Ltd has conducted a staff training exercise to demonstrate the process for operating the rear door in the event of post-landing flap extension and has advised that procedure is to be emphasised on all pre-departure passenger briefings.

ATSB comment

The ATSB welcomes the training session provided to staff, but will continue to monitor this safety action until Fly Esperance Pty Ltd provides written evidence of adopting a procedural changes to staff training (induction and recurrent), and operational pre-flight safety briefings.

Safety advisory notice to operators and pilots of Cessna 206

SAN number:	AO-2024-049-SAN-001

The Australian Transport Safety Bureau advises Cessna 206 pilots and operators that due to the difficulties occupants have encountered egressing the rear cargo door as identified in several transport safety investigations, to ensure they are familiar with CASA issued Airworthiness Bulletin 52-006, and ensure passengers are provided with a thorough safety briefing demonstrating the cargo door emergency egress when the wing flaps remain in the extended position.

Cessna 206 emergency exit modifications

Safety issue description

The aircraft did not have the modifications recommended by CASA for Cessna 206 emergency exits, increasing the likelihood of impeded egress during emergency situations

Issue number:	AO-2024-049-SI-02
Issue owner:	Fly Esperance PTY LTD
Transport function:	Aviation: General aviation
Current issue status:	Open – Safety action pending

Proactive safety action taken by Fly Esperance Pty Ltd

Action number:	AO-2024-049-PSA-03
Action organisation:	Fly Esperance PTY LTD
Action status:	Monitor

Fly Esperance Pty Ltd is in the process of investigating the various STCs mentioned in the report, to see which will be best suited to VH-TDQ in order to improve egress from the aircraft in the event of flaps being deployed.

ATSB comment

ATSB acknowledges the due process being undertaken by the operator and awaits further communication from the operator to action the pending safety action.

Safety advisory notice to operators and pilots of Cessna 206

SAN number:	AO-2024-049-SAN-002

The Australian Transport Safety Bureau strongly encourages operators and owners review Transport Canada Airworthiness Directive CF-2020-10, and consider either the removal of a middle row seat to improve rear seat occupants access to the pilots forward left cabin door or the fitment of approved Cessna 206 emergency exit modifications to reduce the risk created by the extended flap preventing the immediate and unobstructed use of the rear cargo doors during an emergency exit.

Safety action not associated with an identified safety issue

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 Fly Esperance Pty Ltd

Following the occurrence Fly Esperance has made the following amendments to its operations manual:

- Added CASA pictorial publication ‘non-controlled aerodrome circuit procedures’ to its Circuit and landing procedures and uncontrolled aerodromes section to better clarify the process.
- Added a table to show the recommended aircraft speed and landing weight with the flaps retracted and extended.
- Pilots will now carry portable GPS aircraft tracking devices to improve aircraft tracking when outside ADSB coverage.
- Greater emphasis on training including ICUS training, highlighting what can happen when standard procedures are not followed.

The changes to the company operations manual are part of a larger amendment that will be under review by CASA in due course.

General details

Occurrence details

Date and time:	01 September 2024 – 11:07 W. Australia Standard Time	
Occurrence class:	Serious incident	
Occurrence categories:	Missed approach / Go-around, Incorrect configuration, Control issues, Collision with terrain	
Location:	39 km 132 degrees from Moora, WA	
	Latitude: 30.9231° S	Longitude: 116.2864° E

Aircraft details

Manufacturer and model:	CESSNA AIRCRAFT COMPANY U206F	
Registration:	VH-TDQ	
Operator:	FLY ESPERANCE PTY LTD	
Serial number:	U20602807	
Type of operation:	Part 135 Australian air transport operations - Smaller aeroplanes-Standard Part 135	
Activity:	Commercial air transport-Non-scheduled-Joyflights / sightseeing charters	
Departure:	Private ALA NE of New Norcia, WA	
Destination:	Private ALA NE of New Norcia, WA	
Persons on board:	Crew – 1	Passengers – 5
Injuries:	Crew – None	Passengers – None
Aircraft damage:	Minor	

Glossary

AD	Airworthiness Directive
AFM	Aircraft flight manual
ALA	Aircraft landing area
AMSL	Above mean seal level
ATSB	Australian Transport Safety Bureau
AWB	Airworthiness Bulletin
CAA	Civil Aviation Authority (Australia)
CASA	Civil Aviation Safety Authority
CASR	Civil Aviation Safety Regulations
FAA	Federal Aviation Association
ft	Feet
kt	Knots
MOS	Manual of Standards
NAIPS	National Aeronautical Information Processing System
NM	Nautical miles
SEB	Service Bulletin
STC	Supplemental type certificate
VREF	Landing reference speed

Sources and submissions

Sources of information

The sources of information during the investigation included:

- the pilot of the accident flight
- Fly WA Group
- the chief pilot of Fly WA Group
- Civil Aviation Safety Authority
- passengers of the accident flight
- Textron Aviation
- Bureau of Meterology
- Flight Radar 24
- accident witnesses
- video footage of the accident flight and other photographs and videos taken on the day of the accident
- United States Federal Aviation Administration
- Transport Canada
- Transport Safety Board of Canada

References

Australian Transport Safety Bureau. (2021). Collision with water involving Textron Aviation Inc. (Cessna) 206, VH-AEE, near Happy Valley, Fraser Island, Queensland, on 29 January 2020. Retrieved from https://www.atsb.gov.au/publications/investigation_reports/2020/aair/ao-2020-010#safetysummary0

Canada, T. (2020, April). *Airworthiness Driective CF-2020-10*. Retrieved from https://wwwapps.tc.gc.ca/Saf-Sec-Sur/2/cawis-swimn/AD_dl.aspx?ad=CF-2020-10&cn=CF&ft=pdf&l=E

Canada, T. (2024, June). *https://www.bst-tsb.gc.ca/eng/enquetes-investigations/aviation/2024/a24w0066/a24w0066.html*. Retrieved from https://www.bst-tsb.gc.ca/eng/enquetes-investigations/aviation/2024/a24w0066/a24w0066.html

Civil Aviation Safety Authority. (2009). *Advisory Circular AC21-30(2)*. Retrieved from https://www.casa.gov.au/sites/default/files/2021-08/advisory-circular-21-30-type-acceptance-certificates-for-imported-aircraft.pdf

Civil Aviation Safety Authority. (2017). *Manual of Standards*. Retrieved from Part 90: https://www.legislation.gov.au/F2010L03095/latest/text

Civil Aviation Safety Authority. (2024). *Civil Aviation Safety Regulations*. Retrieved from Part 90: https://www.legislation.gov.au/F1998B00220/latest/text/2

Civil Aviation Safety Authority. (2025, January). *Advisory Circular AC 91-10 v1.3*. Retrieved from Operations in the vicnity of non-controlled aerdromes: https://www.casa.gov.au/operations-vicinity-non-controlled-aerodromes

Civil Aviation Safety Authority. (2025). *Airworthiness Bulletin 52-006*. Retrieved from https://www.casa.gov.au/sites/default/files/2025-01/awb_52-006_issue_2_-_textroncessna_206_rear_cargo_door_exit.pdf

Civil Aviation Safey Authority. (2011). *AIRWORTHINESS DIRECTIVE AD 206/47 amndt 3*. Retrieved from https://services.casa.gov.au/airworth/airwd/ADfiles/under/cessna206/CESSNA206-047.pdf

Federal Aviation Administration. (1990). *Supplemental Type Ceretificates*. Retrieved from SA1470GL: https://drs.faa.gov/browse/STC/doctypeDetails?modalOpened=true

Federal Aviation Administration. (2024). *Delegated Organisations*. Retrieved from https://www.faa.gov/other_visit/aviation_industry/designees_delegations/delegated_organizations

Federal Aviation Administration. (2024, July 29). *Federal Aviation Administration Current Regulations*. Retrieved from Federal Aviation Administration: https://www.faa.gov/other_visit/aviation_industry/designees_delegations/delegated_organizations

Transport Accident Investigation Commission, N. Z. (1999). *Accident Investigation 99-001*. Retrieved from https://www.taic.org.nz/sites/default/files/inquiry/documents/99-001.pdf

Wikipedia. (n.d.). *Cessna*. Retrieved from Wikipedia: https://en.wikipedia.org/wiki/Cessna

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 pilot of the accident flight
- Fly Esperance chief pilot
- Textron Aviation
- Civil Aviation Safety Authority.

Submissions were received from:

- the pilot of the accident flight
- Fly Esperance chief pilot
- Civil Aviation Safety Authority.

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

Appendices

Appendix 1 – Cessna 206 occurrences

Year	Injuries	Summary	Link	Country of Occurrence
2020	2 Persons on board (pob) 2 minor injuries	During a landing at a beach landing area on Fraser Island, Queensland, the Cessna U206G aircraft veered significantly to the left. Once airborne it was identified that the rudder was jammed in the full-left position and the pilot had to apply full opposite aileron to maintain control. The engine subsequently stopped, possibly due to fuel starvation and the aircraft collided with water. Unable to open the pilots door the trainee pilot kicked the cargo door to force it open past the extended flap.AO-2020-010	ATSB AO-2020-010	Australia
2018	5 pob 3 fatalities	During a landing on water, a float equipped U206G nosed over. The pilot and one passenger survived. The three remaining passengers, who received no injuries during the accident, were unable to escape the fuselage and drowned. The passengers were found with their seatbelts unfastened but had not opened the cargo door, which was blocked by 20˚ flap.	TSB A180129	Canada
2012	5 pob 1 fatality	During a landing on water, the float equipped 206 nosed over. The flaps were extended blocking the cargo door. The pilot and three passengers escaped by bending the cargo door. The fourth passenger, found in her seat with the seatbelt on, likely died through injuries caused by the accident.	NTSB ANC12FA073	United States
2010	5 pob 4 fatalities	During cruise, the engine failed, and the pilot conducted a ditching into Lake Michigan. The pilot did not lower the flap; however, the cargo door had not been opened. The pilot survived. Two passengers were found outside the aircraft however, their life jackets had failed. Of the two passengers found inside the cabin, one had removed their seatbelt.	NTSB CEN10FA465	United States
2003	2 pob 1 fatality	During the landing on water, the float equipped 206 flipped over. Contrary to instructions provided by the pilot, the passenger made their way to the rear of the aircraft, was unable to exit, and drowned.	TSB aviation occurrence A03Q0083	Canada
2001	5 pob 1 fatality	During the landing, the aircraft collided with a hole in the runway, nosed over and slid into a river. The pilot and three passengers escaped with minor injuries, however, one of the passengers drowned trying to escape the aircraft.	Aviation Safety Network Wikibase Occurrence 45813	Venezuela

Year	Injuries	Summary	Link	Country of Occurrence
1999	6 pob	During an aerial surveillance air transport flight around Pitt Island, New Zealand the aircraft had a sudden engine failure and ditched in the sea. The pilot and four passengers escaped from the aircraft and swam to shore without the aid of life-jackets. Aircraft flaps were not extended during the ditching.	Transport Accident Investigation Commission, New Zealand 99-001	New Zealand
1997	3 pob 2 fatalities	During the landing on water, the float-equipped aircraft flipped as the landing gear had not been retracted. Two passengers were unable to exit the aircraft and drowned. The door handle was found in the upright closed position.	TSB Aviation investigation report A97C0090	Canada
1996	6 pob 4 fatalities	During the take-off on water, the aircraft capsized. The pilot and three passengers drowned in the rear of the aircraft, when the pilot could not open the cargo door. Two passengers escaped through the pilot door. There was evidence that an adult had attempted to open the cargo door.	TSB Aviation investigation report A96Q0114	Canada
1989	5 pob 4 fatalities	During the landing on a dam, the float-equipped 206 nosed over as the landing gear had not been retracted. The pilot and one passenger survived, but three passengers were fatally injured.	Aircraft Accident Investigation Board – Norway 06/99	Norway
1985	5 pob 3 fatalities	During the landing on a dam, the float-equipped 206 nosed over as the landing gear had not been retracted. The pilot and one passenger survived, but three passengers were fatally injured.	ATSB 198503550	Australia

About the ATSB

The **Australian Transport Safety Bureau** is the national transport safety investigator. Established by the *Transport Safety Investigation Act 2003* (TSI Act), the ATSB is an independent statutory agency of the Australian Government and is governed by a Commission. The ATSB is entirely separate from transport regulators, policy makers and service providers.

The ATSB's function is to improve transport safety in aviation, rail and shipping through:

- the independent investigation of transport accidents and other safety occurrences
- safety data recording, analysis, and research
- influencing safety action.

The ATSB 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 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.

About ATSB reports

ATSB investigation final reports are organised with regard to international standards or instruments, as applicable, and with ATSB procedures and guidelines.

Reports 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

An explanation of ATSB terminology used in this report is available on the ATSB website.