



Australian Government

Australian Transport Safety Bureau

Take-off from a closed runway involving Fairchild Industries SA226-T, VH-LDQ

Gunnedah Airport, New South Wales, on 20 August 2020

ATSB Transport Safety Report

Aviation Occurrence Investigation (Short)

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Addendum

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Safety summary

What happened

A privately operated Fairchild Industries SA226-T aircraft, registered VH-LDQ, landed at Gunnedah Airport, New South Wales, on 19 August 2020, where it was then parked overnight. The following day, at about 1230 Eastern Standard Time, the pilot commenced a take-off run on runway 29. As the aircraft accelerated, the pilot saw that there were two holes excavated from the runway pavement. The pilot attempted to avoid the holes, but the aircraft's left main landing gear struck them. The aircraft sustained damage to the left main landing gear assembly, which resulted in it collapsing, and the left propeller striking the ground. The aircraft veered off the runway and came to rest outside the flight strip.

What the ATSB found

The ATSB found that during pre-flight planning, the pilot had not checked for relevant NOTAMs, including one stating that Gunnedah Airport was closed due to works in progress. Prior to entering the runway and commencing the take-off run, the pilot did not see evidence of the runway works.

A white cross had been placed at the main windsock, visible to aircraft arriving overhead, however, when the pilot had landed the previous afternoon the aerodrome was still open. Further, there was no works safety officer on site or any ground-visible unserviceability markings on the runway, as required by the Civil Aviation Safety Regulations Part 139 Manual of Standards (MOS) for Aerodromes. Aerodrome works staff were not aware of the updated MOS requirements that had come into effect 7 days earlier and had interpreted the superseded MOS to not require unserviceability markings if the whole aerodrome was closed.

What has been done as a result

The Gunnedah Airport operator has added folding signs to all entry gates to the airfield, which will display any total unserviceability or restricted operations signals that are currently being displayed in the signals area adjacent to the primary windsock.

Additionally, the airport operator updated their contact details with CASA to ensure timely receipt of updates to requirements.

Safety message

An essential component of pre-flight planning is to check all NOTAMs relevant to the planned flight. This includes NOTAMs regarding all aviation facilities that a pilot plans to use.

To ensure receipt of correspondence that may affect safety of aircraft operations, aerodrome operators should ensure CASA is provided up to date contact details, particularly following changes to staff.

The investigation

Decisions regarding whether to conduct an investigation, and the scope of an investigation, are based on many factors, including the level of safety benefit likely to be obtained from an investigation. 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

A privately operated Fairchild Industries SA226-T aircraft, registered VH-LDQ departed Bankstown aerodrome, New South Wales (NSW) on 19 August 2020 at 0720 Eastern Standard Time (EST)¹ for a private flight to Mudgee Airport, NSW.

The aircraft arrived in Mudgee at about 0900, before departing for Dubbo City Regional Airport, NSW, at about 1130. During this time, at 1047, a NOTAM² was published, closing Gunnedah airport, NSW, on the following day, 20 August, between 0700 and 1500 for emergency runway works.

The pilot departed Dubbo at about 1515 and arrived at Gunnedah Airport, at about 1550. As the aircraft was taxied to the parking bay, the pilot noticed a rough spot on the asphalt near the end of the runway. The aircraft was then parked for the night.

On 20 August, at about 1225, the pilot advised Brisbane Centre air traffic control that the aircraft was taxiing at Gunnedah for departure. On receiving the taxi call, the controller checked for any current notices to airmen (NOTAM) and found one current for the airport, stating that it was closed due to works in progress. The controller attempted to inform the pilot but was unable to establish contact.

About 5 minutes later, the pilot commenced the take-off run on runway 29 after taxiing by the works in progress (Figure 3) to the threshold and turning around. The pilot reported seeing patches on the pavement in the distance. As the aircraft accelerated and progressed along the runway, it became apparent to the pilot that there were two holes excavated from the runway pavement (3 m wide by 5 m long), which were about 30 cm deep (Figure 1). The pilot attempted to avoid the holes but was unable to clear them with the aircraft's left main landing gear.

¹ Eastern Standard Time (EST) was Coordinated Universal Time (UTC) + 10 hours.

² NOTAM: A notice distributed by means of telecommunication containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.

Figure 1: Pavement work in progress on runway 29



Source: Airport operator

The aircraft sustained damage to the left main landing gear assembly that resulted in it collapsing and the left propeller striking the ground. The aircraft veered off the runway and came to rest outside the flight strip (Figure 2).

Figure 2: Aircraft's position after the attempted take-off



Context

Gunnedah airport

Runway works

On 14 August 2020, following jet operations that had been conducted with a pavement concession,³ the aerodrome reporting officer (ARO) at Gunnedah Airport identified some lifted pavement in the centre of runway 29. The damage was located about 215 m along the runway from the runway 29 threshold, 15 m past the taxiway intersection (Figure 3).

Figure 3: Location of holes on runway in relation to taxiway



Source: Google Earth and airport operator, annotated by the ATSB

On 19 August, the asphalt crew advised the ARO that they would be able to conduct runway repairs on the following day. The ARO reported contacting Airservices Australia by phone, who advised that the airport could be closed at short notice (within 24 hours) with a NOTAM in place if emergency works were required. Additionally, the ARO reported that they confirmed their interpretation of the Civil Aviation Safety Regulations' Manual of Standards (MOS) for Aerodromes, that unserviceability markings would not be required if the aerodrome was closed. A NOTAM was published at 1047 stating that the aerodrome was not available due to works in progress between 0700 and 1500 EST on 20 August.

At about 1200, the works crew conducting pavement work left the aerodrome for lunch, returning to find the damaged aircraft. After the incident, the NOTAM closing the aerodrome was extended for an additional 24 hours and was cancelled at 1457 on 21 August, following completion of the works.

The MOS required aerodrome operators to ensure that aerodrome works do not create a hazard to aircraft or cause confusion to pilots. If an aerodrome is used for scheduled air transport operations or has emergency services aircraft based at the aerodrome, a method of working plan is required for aerodrome works, unless the aerodrome is closed with 14 days' notice, or the works are of an emergency nature.

Works are defined to be of an emergency nature if they are to repair unforeseen damage to part of the manoeuvring area, or to remove an obstacle.

Aerodrome unserviceability markings

As defined by the MOS, unserviceability markings are temporary markings used for temporary and permanent closures of runways or taxiways. They consist of white or yellow crosses of various sizes displayed on the surface of a closed or unserviceable area for airborne and taxiing

³ A pavement concession is a privilege granted to an aeroplane operator, allowing the landing, take-off, taxiing or parking of an aeroplane on a runway, taxiway or apron which would not otherwise be available. It allows an aircraft heavier than the rated load capacity of the pavement to use the pavement under specific conditions.

aircraft. When used to mark a runway as unserviceable, the MOS requires a white cross at each end of the runway and at intervals of less than 300 m.

These unserviceability markings are not required on an unserviceable runway at an aerodrome not controlled by an air traffic control provider if all the following exist:

- the runway unserviceability is of less than 24 hours duration
- the total works period is less than 5 days
- a NOTAM has been issued
- a works safety officer is present with a vehicle equipped with a radio that allows for emergency 2-way communication with aircraft
- if the aerodrome has been closed: a total unserviceability signal is displayed in the signal area (if it exists).

Unserviceability markers

As defined by the MOS, unserviceability markers are a 50 cm tall white cone with a 25 cm wide horizontal red stripe. These markers must be placed at the entrance to, and across, any part of the movement area of an aerodrome (including runways) that are not to be used by aircraft. Additionally, at least three must be displayed across the centreline of any portion of a taxiway, apron or holding bay that is unserviceable.

Aerodrome ground signals

The MOS current at the time of the occurrence, had provision for an optional ground signal area, where temporary ground signals for airborne aircraft can be displayed. The MOS noted that the area was ‘neither compulsory nor necessary because of the requirements for radio carriage and use at certified aerodromes,... and the requirement for NOTAMs to be issued for the aerodrome in the event of changes in conditions.’

The aerodrome signal area must be black, 9 m in diameter and located near the primary wind direction indicator. It must have a 1 m-wide border or at least 5 spaced white markers. The markings that could be placed in the signals area included:

- total unserviceability signal – consisting of a white cross; must be displayed when an aerodrome is closed to landing aircraft.
- restricted operations signal – consisting of a white barbell; to indicate that aircraft are only to use sealed runways, taxiways, and aprons.

At the time of the occurrence, a total unserviceability signal was displayed in the signals area at Gunnedah airport.

Update to Manual of Standards (Aerodromes)

On 13 August 2020 (seven days before the incident), the Civil Aviation Safety Regulations Part 139 (Aerodromes) Manual of Standards (2019) came into force, replacing the previous 2014 MOS. This manual sets out the standards required of certified aerodromes.

A new section was added in Chapter 8 to articulate specific circumstances where unserviceability markings are not required, given that other visual aids or conditions are met. This included the addition of the requirement for a works safety officer with a vehicle and radio. The requirements for the use of unserviceability markers was expanded from situations where it was ‘possible for aircraft to bypass the area safely’, to require marking of all unserviceable movement areas.

Additionally, requirements for the notification and planning of aerodrome works and method of working plans were clarified and updated.

Communication of changes

The Civil Aviation Safety Authority (CASA) began engaging with certified aerodrome operators regarding upcoming changes to MOS 139 in April of 2020 by email and letter, with information provided on the CASA website. CASA sent this information to a mailing list that included an email address associated with Gunnedah Airport, for a person that was no longer working for the airport operator.

The Gunnedah Airport operator's email system did not generate an 'undeliverable' bounce message for email addresses that have previously existed. CASA advised the ATSB that they rely on these bounced emails, or updates from aerodrome operators to ensure that information is received by a nominated person.

Flight Planning

Civil Aviation Regulation 239, required pilots to study all available information appropriate to the intended operation, including current weather reports and forecasts for the route and aerodromes, and the condition of aerodromes to be used.

Aerodrome condition information is typically communicated via a NOTAM. NOTAM and weather information can be obtained through the National Aeronautical Information Processing System Internet Service, a phone briefing, AVFAX or by radio.

The pilot had not checked NOTAM information for Gunnedah Airport before commencing take-off from runway 29.

Safety analysis

Communication of closure

The Gunnedah Airport operator had issued a NOTAM for the emergency runway works in accordance with requirements. The NOTAM issued stated that the aerodrome would be closed due to works in progress, was in place 20 hours prior to the closure and active at the time of the occurrence. Had the pilot checked the NOTAMs prior to flight, as required, they would have been alerted to the fact that the aerodrome was not available for use.

Evidence of works

As well as the active NOTAM at the time of the incident, Gunnedah airport had a total unserviceability signal displayed adjacent to the primary wind direction indicator, to warn pilots that the aerodrome was closed. However, this signal was not visible to a pilot on the manoeuvring surface and nor is it designed to be.

There were no other unserviceability markings or markers in use on this occasion. The Part 139 Manual of Standards (MOS) in force at the time required both, however the use of unserviceability markers on the runway would not have been required had a works safety officer been present. The aerodrome reporting officer was unaware of the introduction of the updated MOS and believed they had adhered to the correct standards. In addition, they interpreted the guidance received from Airservices as confirmation of their understanding of the requirements.

The use of unserviceability markers on the runway or a presence of the works safety officer together with the use of unserviceability markers would also have provided additional risk controls against the attempted take off from the closed runway.

Communication of changes to MOS

CASA relies on aerodrome operators ensuring that they have a valid, monitored email address registered for the distribution of timely updates on associated legislation and requirements. The registered contact for Gunnedah Airport had left the role and new contact details had not been provided to CASA, which meant that this mechanism for receiving updates was unavailable.

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 take-off from a closed runway at Gunnedah Airport, New South Wales, involving a Fairchild Industries SA226-T aircraft, registered VH-LDQ on 20 August 2020.

Contributing factors

- The pilot had not checked NOTAMs, which advised of the aerodrome closure, and did not see evidence of works.
- There was no works safety officer at the aerodrome, or ground visible unserviceability markers or markings on the runway, as required under the Manual of Standards for Aerodromes.
- Aerodrome works staff were not aware of the new Manual of Standards requirements and interpreted the previous version to not require unserviceability markers or markings during an aerodrome closure.

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 Gunnedah Airport operator

Gunnedah Airport operator has added folding signs to all entry gates to the airfield that will reflect any ground signals active in the signals area (Figure 4). They have also updated their contact details with CASA.

Figure 4: New signals signage at Gunnedah airport



Source: Airport operator

Sources and submissions

Sources of information

The sources of information during the investigation included:

- Civil Aviation Safety Regulations Part 139 (Aerodromes) Manual of Standards 2019 (as amended 13 August 2020)
- Civil Aviation Regulations 1988 (as amended 13 August 2020)

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:

- Gunnedah Airport operator
- the Civil Aviation Safety Authority
- Airservices Australia
- the pilot

Submissions were received from:

- the Civil Aviation Safety Authority

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

General details

Occurrence details

Date and time:	20 August 2020 – 1225 EST	
Occurrence class:	Serious Incident	
Occurrence categories:	Operational non-compliance, Depart / App / Land wrong runway, Runway excursion, Ground strike, Other Infrastructure, Rejected take-off	
Location:	Gunnedah Airport, New South Wales	
	Latitude: 30° 57.634' S	Longitude: 150° 15.190' E

Aircraft details

Manufacturer and model:	Fairchild Industries SA226-T	
Registration:	VH-LDQ	
Serial number:	T326	
Type of operation:	Private-Pleasure / Travel - (Private)	
Activity:	General aviation / Recreational-Sport and pleasure flying-Pleasure and personal transport	
Departure:	Gunnedah Airport NSW	
Destination:	Gold Coast Airport QLD	
Persons on board:	Crew – 1	Passengers – Nil
Injuries:	Crew – 0	Passengers – N/A
Aircraft damage:	Minor	