



Australian Government

Australian Transport Safety Bureau

Taxiing incident involving Airbus A330, 9M-XXK

Melbourne Airport, Victoria, 9 September 2016

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Addendum

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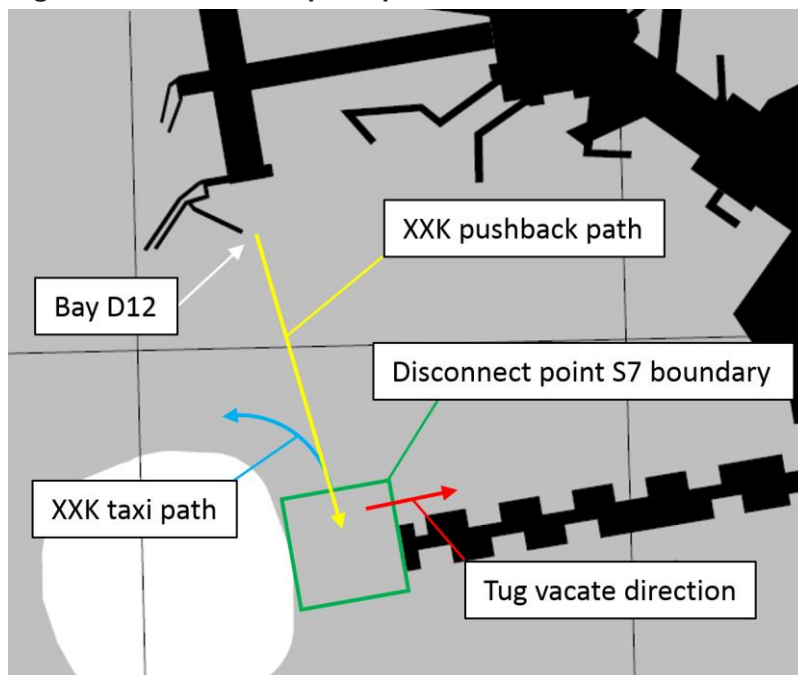
Taxiing incident involving Airbus A330, 9M-XXK

What happened

On 9 September 2016, at about 0005 Eastern Standard Time (EST), an AirAsia X Airbus A330-343X, registered 9M-XXK (XXK) pushed back¹ from gate D12 to disconnect point S7 (Figure 1) at Melbourne Airport, Victoria, to operate scheduled passenger flight D7213 to Kuala Lumpur, Malaysia. Although it was night-time, the apron was well lit by flood lights.

The aircraft maintenance engineer (AME) conducting the pushback was provided by a contracted company, the tug and tug driver were provided by a third company. Prior to commencing the pushback, the AME installed the nose gear steering bypass pin,² connected the tow bar to both the aircraft nose landing gear and the tug. During the pushback, as the tug moved the aircraft, the AME was seated in the tug. The AME was in continuous communication with the flight crew using a headset connected directly through a headset jack to the cockpit. During the pushback, the flight crew started one engine. After reaching disconnect point S7, the flight crew applied the park brake and started the second engine.

Figure 1: Melbourne Airport apron section overview



Source: Airservices Australia, modified by ATSB

At 0008, after both engines were started, the AME disconnected the headset and tow bar from both the aircraft and the tug, the AME also removed the bypass pin. The tug driver turned the tug around to allow the AME to attach the tow bar to the rear of the tug. The tug driver then moved the tug and tow bar to a position forward of the aircraft's right engine and visible to the first officer (Figure 2). The AME then walked to a position in front of the tug, and displayed the bypass pin to the first officer. The AME received a hand signal from the first officer confirming the first officer had

¹ Pushback is a procedure during which an aircraft is pushed back, away from an airport gate or bay, by an external tug.

² The nose gear bypass pin is installed during the pushback sequence to bypass the normal aircraft steering, allowing the tug to control aircraft steering.

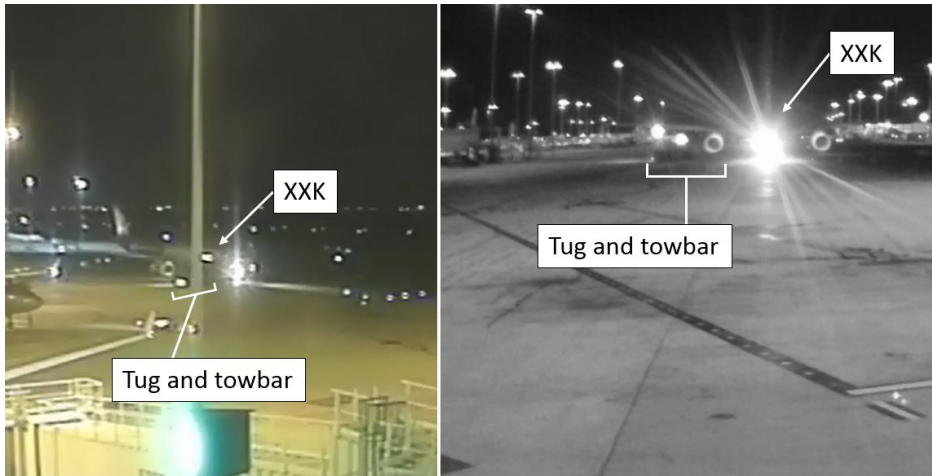
sighted the bypass pin. Sighting the bypass pin was the final item on the flight crew's after start checklist. The flight crew then contacted ATC and obtained a taxi clearance.

At 0009, the first officer confirmed to the captain that the AME and tug were clear, the captain then began to taxi. At this time, the AME was walking towards the left side of the tug, which remained parked forward of the aircraft's right engine and wing. As the AME walked, they detected the aircraft's taxi light illuminate and the aircraft begin to move. The AME then ran toward the tug door and alerted the tug driver to the aircraft movement.

Video footage of the incident shows the tug driver taking action to avoid a collision with the taxiing aircraft.

The flight departed without further incident.

Figure 2: Positions at commencement of aircraft taxi



Source: Melbourne Airport, modified by ATSB

Flight crew procedures

The flight crew procedures included the following steps:

- After the pushback and engine start sequence is complete, the bypass pin must be sighted.
- Once taxi clearance is obtained, the flight crew shall ensure both sides of the aircraft are clear prior to taxi.

Flight crew comments

The flight crew of XXK provided the following comments:

- Both flight crew interpreted the AME displaying the bypass pin as meaning the tug and AME were clear, and it was safe to commence taxi.
- The flight crew assumed that ATC providing the taxi clearance meant that ATC had confirmed the tug was clear of the aircraft.
- The first officer observed the tug and AME to the right of the aircraft and assessed that they were clear of the right engine.

Aircraft maintenance provider procedures

The ground handling procedures include the following steps:

- Once the tow bar is connected to the tow vehicle (after being disconnected from the aircraft), the tow vehicle must move away to an area that is visible to the flight crew.
- At a suitable and safe distance from the aircraft, (the AME must) hold up the bypass pin to provide visual confirmation that it has been removed to the flight crew and give a 'thumbs up' signal indicating 'clearance to proceed'. Once acknowledged by the flight crew, move away from the aircraft to a safe distance for the aircraft to taxi.

AME and tug driver comments

- The tug driver and AME both commented that they expected the aircraft to remain stationary until they had moved clear of the S7 disconnect point boundary.

Airservices Australia safety bulletin

The AME and captain commented that they expected air traffic control (ATC) to confirm that the tug was clear of the aircraft and disconnect point S7 prior to providing a taxi clearance.

In 2015, ATC provider, Airservices Australia, identified some misinterpretation among pilots, airside drivers and ground crew regarding the responsibilities for collision avoidance on aerodrome movement areas and the services ATC provide to aircraft and/or vehicles operating on these areas. In response, on 12 November 2015, Airservices Australia released an [Aeronautical Information Circular AIC \(H32/15\)](#) and subsequently in 15 March 2016, this information was released as a safety bulletin, [Safety of ground movement on a controlled aerodrome](#). The bulletin had been provided to the operators involved in this incident.

The bulletin contains the following information regarding operations on the apron and push-back approvals:

The pilot in command (with any assisting ground personnel) is responsible for avoiding collision on the apron. ATC push-back approvals and taxi clearances are only to regulate entrance to, and movement on, the taxiways and do not relate to movement on the apron areas.

When ATC issue approval for push-back or taxi clearance, they will only provide information about relevant known aircraft moving on the same apron. This information may be incomplete as ATC has limited knowledge (or visibility) of movements on the apron. Pilots must also obtain traffic information from assisting ground personnel and, where available, the apron service which may be established as a discrete service at some locations.

Safety analysis

The flight crew interpreted the AME showing the bypass pin at the end of the pushback sequence as notification that all vehicles and equipment were clear of the aircraft and it was safe to commence taxi. The ground crew expected that the flight crew would commence taxi only after all personnel and equipment had crossed the line demarcating the boundary of the S7 disconnect point. Both the flight crew and AME expected that the aircraft would not receive a clearance to taxi until ATC had confirmed that the tug and AME were clear. The misunderstandings by the parties involved during this sequence likely led to incorrect expectations of when the aircraft would begin taxi and the aircraft beginning to taxi prior to the tug moving clear.

The flight crew procedures required the flight crew to visually confirm that all ground equipment was clear of the aircraft prior to taxi. The first officer assessed that the tug and tow bar were clear of the right engine when they were not, although their perception may have been influenced by an expectation of them being clear given the communications with the AME and ATC providing taxi clearance.

Findings

This finding should not be read as apportioning blame or liability to any particular organisation or individual.

- The flight crew and ground crew had differing understandings of procedures. These differing understandings led to different expectations of when the aircraft would commence taxi which resulted in the near collision.
- The first officer incorrectly assessed the distance of the tug from the aircraft.

Safety message

Ground handling of large aircraft presents many safety risks and requires many separate operators to work closely together. Effective teamwork ensures safe and efficient ground operations.

This incident highlights the importance of separate operators working closely together and having procedures which are well harmonised. It is also important that these procedures are well understood and practiced by all individuals involved from the different operators to ensure all parties understand their role but also how their role interacts with other parties.

Also highlighted, is the importance of understanding the services provided by ATC. ATC provide separation between aircraft, personnel and equipment operating on manoeuvring areas. ATC do not separate aircraft from tugs and other ground personnel on apron areas such as disconnect point S7.

General details

Occurrence details

Date and time:	9 September 2016 – 0009 EST	
Occurrence category:	Incident	
Primary occurrence type:	Taxiing near collision	
Location:	Melbourne Airport, Vic.	
	Latitude: 37° 40.400' S	Longitude: 144° 50.600' E

Aircraft details

Manufacturer and model:	Airbus A330-343X	
Registration:	9M-XXK	
Operator:	AirAsia X	
Serial number:	1433	
Type of operation:	Air Transport High Capacity - Passenger	
Persons on board:	Crew – 10	Passengers – 237
Injuries:	Crew – 0	Passengers – 0
Aircraft damage:	Nil	

About the ATSB

The Australian Transport Safety Bureau (ATSB) is an independent Commonwealth Government statutory agency. The ATSB is governed by a Commission and is entirely separate from transport regulators, policy makers and service providers. The ATSB's function is to improve safety and public confidence in the aviation, marine and rail modes of transport through excellence in: independent investigation of transport accidents and other safety occurrences; safety data recording, analysis and research; and fostering safety awareness, knowledge and action.

The ATSB is responsible for investigating accidents and other transport safety matters involving civil aviation, marine and rail operations in Australia that fall within Commonwealth jurisdiction, as well as participating in overseas investigations involving Australian registered aircraft and ships. A primary concern is the safety of commercial transport, with particular regard to operations involving the travelling public.

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

The object of a safety investigation is to identify and reduce safety-related risk. ATSB investigations determine and communicate the safety factors related to the transport safety matter being investigated.

It is not a function of the ATSB to apportion blame or determine 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.

About this report

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, fact-gathering investigation was conducted in order to produce a short summary report, and allow for greater industry awareness of potential safety issues and possible safety actions.