

**Aviation Safety Investigation Report  
199102085**

**Airbus  
A320**

**31 December 1991**

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<b>Occurrence Number:</b> 199102085 <b>Location:</b> Sydney <b>State:</b> NSW <b>Date:</b> Tuesday 31 December 1991 <b>Time:</b> 2013 hours <b>Highest Injury Level:</b> None	<b>Occurrence Type:</b> Incident  <b>Inv Category:</b> 3  <b>Time Zone</b> ESuT
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<b>Aircraft</b> Airbus <b>Manufacturer:</b> <b>Aircraft Model:</b> A320-211 <b>Aircraft Registration:</b> VH-HYC  <b>Type of Operation:</b> Air Transport Domestic High Capacity Passenger Scheduled <b>Damage to Aircraft:</b> Nil <b>Departure Point:</b> <b>Departure Time:</b> <b>Destination:</b>	<b>Serial Number:</b> 024
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**Approved for Release:** Thursday, February 2, 1995

## 1. FACTUAL INFORMATION

### Sequence of events

At approximately 1930 Eastern Summer Time (ESuT), the tug driver called the International Terminal Apron Surface Movement Controller (SMC) and requested push-back clearance and clearance to tow the Fokker F-28 VH-EWG to the domestic terminal. The tug driver was advised that a clearance would be unavailable for about 30 minutes pending the arrival of VIP traffic and to call SMC on Sydney Ground frequency 121.7 MHz for clearance.

Airbus A320, VH-HYC, received a taxi clearance at 1931. The aircraft, scheduled to fly to Perth, had an operational requirement to use runway 34.

At 2007, the tug driver called SMC and requested clearance for pushback and tow from bay 3 at the international terminal to bay 17D at the domestic terminal. Approval was given to push back and the driver was instructed to report when ready to tow. Two minutes later the tug driver reported ready to tow. SMC cleared the aircraft to tow.

As the F-28 under tow proceeded along taxiway Charlie heading east towards runway 34, the SMC requested a clearance from the Aerodrome Controller for the F-28 to cross the runway. The Aerodrome Controller refused the request and advised the SMC to expect extended delays due to a backlog of departing traffic. Runway 34 was the only runway available as the route of the VIP motorcade temporarily closed runway 07.

The Aerodrome Controller, after visually scanning runway 34 to ensure the runway was clear, issued a take-off clearance to VH-HYC.

As VH-HYC approached rotate speed, the crew sighted the F-28 under tow, crossing the runway ahead. The takeoff was continued as it was apparent to the crew their aircraft would reach a safe height before VH-HYC crossed taxiway Charlie. The crew then called the Aerodrome Controller and advised that an F-28 under tow had crossed runway 34. The transmission was the first indication to the five Air Traffic Services persons on duty in the tower that a runway incursion had taken place. The crew of VH-HYC reported that their aircraft was about 600 ft above the runway when it overflew taxiway Charlie.

### Background

The airport was effectively closed for the arrival of the VIP traffic which landed at 1955. Normal operations at the airport resumed at 1958. VH-HYC had been held on taxiway Juliet where the crew had shut down the engines during the delay. At 1959, the crew of VH-HYC reported ready to continue taxiing for runway 34.

The weather was fine and clear but light was fading as dusk approached. Observers said the F-28 was readily distinguishable in the existing light conditions with its navigation lights and rotating beacons illuminated. Last light was at 2038 ESuT.

Runway 34 has a hump at about the position the runway crosses the vehicular tunnel south of taxiway Charlie. The hump would partially obscure an aircraft on the threshold of runway 34 to an observer seated on a tug at the intersection of taxiway Charlie and runway 34. The distance between these locations is approximately 2.5 km.

Several bomb threats were received in connection with the arrival of the VIP traffic. A specific threat was being dealt with by the Senior Tower Controller about the time of the incident.

#### Air Traffic Services aspects

Local air traffic control orders at Sydney require the SMC to issue the instruction 'hold short of runway' to all aircraft, including those under tow, which will cross an active runway en route to their destination. This instruction is to be issued on first contact by the SMC with the taxiing aircraft. On this occasion, the SMC did not issue a hold short instruction to the tug driver towing the F-28.

The SMC had been rated in the position for approximately six months. He was aware of the need for the hold short instruction but could offer no reason for not giving the instruction to the tug driver.

At 2000, the tower co-ordinator position was vacated when the controller completed his shift. The Senior Tower Controller then took over the co-ordinator duties.

Sydney Tower is equipped with surface movement radar to assist control of aircraft on the movement areas. This radar data is not recorded so it was not possible to determine the position of the tug at the time of issue of the take-off clearance to VH-HYC. The tug had probably not crossed the holding point on taxiway Charlie at that time as the Aerodrome Controller reported that he checked the runway both visually and by the surface movement radar display to ensure it was clear. The tug was reported to have travelled at between 10 and 15 km/h as it crossed runway 34. At those speeds the time to cross the runway from the holding point to the eastern edge of runway 34 would have been between 23 and 32 seconds.

#### Tug driver licensing aspects

The tug driver, a licensed aircraft maintenance engineer, had twelve months experience towing aircraft on Sydney (Kingsford Smith) Airport. He held current Federal Airports Corporation (FAC) and company drivers licences applicable to operating aircraft tugs on the movement area of the airport. Documents available to the driver specified procedures for the operation of vehicles on the movement areas of the airport. The documents included a company standard tarmac/ramp operating procedures and precautions manual and the FAC Sydney (Kingsford Smith) Airport Airside Driving Handbook. However, neither document addressed the procedures to be followed for crossing runways. The tug driver stated that he believed that he was cleared to cross the runway unless he had been told to hold short.

The overall responsibility for the training and issue of licences to operators of vehicles on the airport movement area rests with the FAC. The FAC has an agreement with the major airlines that, in effect, delegates the responsibility for the training and issue of licences for each airlines' staff to that airline. All other persons who require licences to drive vehicles on the movement area are tested by FAC senior ground safety officers. In this case, the tug driver had been tested and issued with an Airside Drivers Licence by FAC officers prior to commencing duties with the airline. The driver does not recall any instruction being given on the procedures required for crossing runways.

## 2. ANALYSIS

The tug driver crossed runway 34 without a clearance from the SMC. In the absence of an instruction to hold short of runway 34 when cleared to taxi, the tug driver assumed there was no reason to gain an additional clearance to cross the runway. In addition, before crossing the runway, he said he did not see any other aircraft on the runway and presumed it was safe to cross. Another engineer accompanying the driver on the tug was of the same opinion.

When the towing clearance was issued, the SMC was required to advise the tug driver to hold short of runway 34. He did not issue that restriction and, significantly, was unaware that he had failed to do so. Hence it was the SMC's expectation that the tug and the F-28 would hold short of runway 34. The SMC was conscious of the tug's progress along taxiway Charlie as he requested a clearance to cross from the Aerodrome Controller. His subsequent actions were based upon the assumption that the tug driver was aware of the requirement to hold short of runway 34.

Although all controllers in the tower were aware of the movement of the aircraft under tow, it was the principal responsibility of the SMC to monitor the surface traffic. About the time the tug approached the western holding point to runway 34 on taxiway Charlie, the SMC was obtaining a clearance for another aircraft to cross runway 07. Another, less definable, distraction was the more recent bomb threat which was directed at Air Traffic Services buildings. Such a threat would have generated a certain degree of anxiety amongst the occupants of the tower and minimised the time the Senior Tower Controller could devote to overall supervision of operations. Added to this was the arrival of a VIP aircraft that resulted in delays and changes to the normal operation of the airport.

In summary, both the training and testing of the tug driver and the information on airside vehicular procedures were inadequate. The SMC, while initially making a mistake in not advising the tug driver to hold short of the runway, could have recovered the situation by instructing the tug driver to hold short of the runway when a clearance to cross was denied by the Aerodrome Controller. However, he was not required to do this. Also, in view of the VIP traffic at the airport at the time, it may well have been prudent for the Senior Tower Controller to extend the shift of the co-ordinator until operations had returned to normal.

## 3. CONCLUSIONS

### 3.1 Findings

1. The driver of the tug and the engineers assisting in the towing operation were properly licensed and were experienced in aircraft towing operations on Sydney Airport.
2. The SMC was properly rated and trained to occupy that position in the tower.
3. The training and testing of the tug driver were inadequate.
4. The instructions issued to drivers of vehicles on the airside of Sydney Airport were inadequate.
5. The crew of VH-HYC did not see the F-28 until their aircraft was approaching rotation speed.

6. The aircraft under tow had its navigation and rotating beacons illuminated and was readily visible from the control tower in the existing light conditions.

### 3.2 Significant factors

1. The training and testing of the tug driver were inadequate.
2. The SMC did not instruct the tug driver to hold short of runway 34.
3. The tug driver crossed runway 34 without a clearance.
4. The SMC did not adequately monitor the progress of the aircraft under tow.

## 4. SAFETY ACTION

The following recommendations were made to the Federal Airports Corporation:

1. The FAC should amend the Sydney (Kingsford Smith) Airport Airside Driving Handbook to include specific instructions concerning towing of aircraft on movement areas, holding points for runways and requirements for ATC clearances to cross runways.
2. The FAC should ensure that all airline companies involved in towing operations at Sydney include specific instructions concerning towing of aircraft on movement areas, holding points for runways and requirements for ATC clearances to cross runways in their Standard Operating Procedures for Tarmac and Ramp.
3. The FAC should establish procedures to ensure that the drivers of companies who possess the delegation to train staff to drive vehicles on movement areas, meet and maintain the standards set by the Corporation.
4. The FAC should include in its by-laws the requirement that the Airport Airside Driving Handbook be mandatory for every FAC-operated aerodrome and that only drivers tested in accordance with this Handbook be authorised to drive on the manoeuvring area.

### FAC response 1

Both incidents have been investigated and whilst I regret the delay in responding to your letter, the Corporation's position in law on these matters is the subject of continuing advice.

During our examination of the facts of the Ansett Express F-28/A320 incident, we were able to ascertain that the tug used during the towing operation was equipped with both a radio and an external speaker. The radio carried both ground and Sydney movement control apron frequencies. There were two Ansett Ground Engineers on board the tug. The driver had been tested by the Corporation's testing staff during his employment with East West Airlines and had been issued with an airside licence. He was fully aware of communication procedure and with the airport geography. The incident occurred within an area which by Statute is under the control of CAA and was caused by a breakdown in communication procedure whilst under CAA control.

What needs to be stressed is the fact that the operation of an airline vehicle across an active runway is primarily a matter involving the Civil Aviation Authority and the relevant airline.

Whilst I do not take issue with your recommendations 1-4, I do not accept in this particular circumstance that any of the recommendations are matters which would in any way excuse the driver's oversight. However, as mentioned above, the Corporation is seeking legal advice on the most appropriate way of applying the technical instructions which already exist and in strengthening our powers to determine the conditions under which airside drivers licences and vehicle permits are issued.

I shall be in touch as soon as our legal consultants have provided their comments.

#### FAC response 2

I refer to my letter of 30 June 1992 in which I mentioned the Corporation was taking legal advice on two issues, i.e. powers to determine the conditions under which airside driving authorities and vehicle permits are issued, and secondly, the Corporation's responsibility for determining standards for the construction of airside tugs.

On the first matter, the Corporation's legal advisers confirm that the Airside Vehicle Control Handbook contained in Technical Instruction 1.0.002 which was issued in March 1991, provides a detailed approach to the testing of drivers and the control of vehicles on the airside.

However, in order to ensure that the Corporation is more adequately protected from liability in the event of an accident occurring and to meet the concerns raised in the BASI recommendations, it is proposed to amend the Airside Vehicle Control Handbook and to make by-laws which provide for:

- (a) Corporation Officers to test applicants in airside driving procedures prior to issuing an authority to drive on the airside;
- (b) the Corporation to authorise approved organisations to:
  - (i) test and to issue airside access permits for Company vehicles; and
  - (ii) issue authorities for their employees to drive vehicles in accordance with the instructions contained in the Vehicle Control Handbook.



(c) Corporation officers to carry out random audits on the adequacy of procedures of any Company authorised under (b) above.

I expect the amended Airside Vehicle Control Handbook to be issued during the next four weeks and gazettal of the By-laws within two months.

A fifth recommendation was later made to the FAC:

5. The Bureau recommends that the FAC adopt procedures to ensure that any driver authorised to use the manoeuvring area at Sydney is aware of the changed taxiway names. It is also recommended that a chart be included in every vehicle authorised to use the manoeuvring area, showing the airport layout and including the names of each taxiway and runway.

This recommendation has been implemented by the FAC in full.

The following recommendations were made to the Civil Aviation Authority:

1. The CAA should monitor FAC actions on the preceding four recommendations to ensure compliance with the Act.
2. The CAA should ensure that all licensed aerodrome operators are aware of their responsibilities under the Civil Aviation Act in relation to the operation of vehicles on the airside of these aerodromes. Aerodrome operators should be required at every movement area entry point to install a sign which states the entry of vehicles and personnel other than those authorised is prohibited and include the relevant authority on the sign.

#### CAA response

With the exception of the question of airline towing tugs and their operation the matters you have raised are the full responsibility of the aerodrome operator. They are normally dealt with in the aerodrome manual as procedures for airside vehicle control. At larger and more complex aerodromes these procedures may also be published separately as an Airside Vehicle Control Handbook.

The CAA prescribes few standards on this subject. Rules for operating vehicles in proximity to aircraft, airside speed limits and particulars of location specific procedures are considered as matters for the discretion of each aerodrome operator.

In consideration of the documented incidents, and the recommendations made subsequently by the Bureau, the Authority will initiate a review of currently documented procedures dealing with airside vehicle control.

The review will be actioned as part of our normal surveillance activities and conducted jointly with the aerodrome operator. Our inspectors will also take the opportunity to provide reinforcement training where procedures are seen as deficient in the areas covered by the Bureau's recommendations.

The Authority is also prepared to legislate for the mandatory provision of signs at entry points to the movement area prohibiting access other than by authorised vehicles and personnel by authority of the aerodrome operator.

This last recommendation is consistent with our policy for operators to accept full compliance responsibility in aerodrome safety matters. It would also provide a visible legal basis for the operator to pursue appropriate enforcement action.