



Australian Government

Australian Transport Safety Bureau

Depressurisation and emergency descent involving a Fokker 100, registered VH-NHC

167 km south-south-east of Geraldton Airport, Western Australia, on
10 August 2020



ATSB Transport Safety Report

Aviation Occurrence Investigation (Defined)

AO-2020-041

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Addendum

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Safety summary

What happened

On the morning of 10 August 2020, a Fokker F28 Mk 0100, registered VH-NHC and operated by Network Aviation, on behalf of QantasLink, departed Perth Airport, bound for Geraldton, Western Australia. While in the cruise, at about 26,000 ft, the flight crew received an excessive cabin altitude warning, with no associated faults identified. The flight crew donned their oxygen masks and initiated an emergency descent. The oxygen masks in the cabin were manually deployed by the flight crew. Once the aircraft levelled out at about 9,000 ft, the flight crew advised that oxygen was no longer required. The flight crew then continued to Geraldton for an uneventful landing.

What the ATSB found

An insulation blanket had become wedged in one of the two air outflow valves, preventing modulation of the aircraft's cabin pressure. In addition, it was established that the insulation blanket had not been correctly secured to the structure, which allowed it to migrate into the outflow valve.

While the manufacturer's instructions for maintenance inspections detailed that insulation blankets could be removed 'as necessary', they did not reference the insulation blanket installation procedure. In addition, it was identified that the insulation blankets were likely not correctly installed prior to being moved for structural inspections. A combination of these two conditions resulted in the insulation blankets not being secured to the structure following maintenance.

What has been done as a result

A fleet-wide inspection by Network Aviation identified that only one of their 17 aircraft had the insulation blankets correctly installed. As a result, they have commenced a fleet-wide program to systematically replace insulation blankets with new items, ensuring correct installation as per the manufacturer's instructions.

The type certificate holder advised they would amend the relevant maintenance documentation to clarify the insulation blanket manufacture, removal, inspection and installation procedures. In addition, where movement or removal of insulation blankets was required for certain tasks, the job instruction card would reference the insulation blanket installation procedures.

Finally, the maintenance organisation issued a 'Maintenance Notice' highlighting the importance of securing the insulation blankets in accordance with the manufacturer's instructions. This notice was also included as part of the maintenance inspection finalisation paperwork.

The ATSB also alerted the other Australia operators of Fokker 100 aircraft to this occurrence and, in response, they conducted fleet inspections.

Safety message

When performing safety-critical tasks like aircraft maintenance, it is very important that procedures are clear and consistent across all documentation in order to avoid misinterpretation and error, such as occurred in this incident.

Further, industry best practice recommends that, when removing a part or component, to not assume it had been correctly installed previously. In all cases, the relevant maintenance documentation should be referred to, ensuring the part or component is being installed to the current specifications.

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The occurrence

On 10 August 2020, a Fokker 28 Mk 0100 (Fokker 100), registered VH-NHC (NHC) was being operated by Network Aviation on behalf QantasLink as scheduled flight QF1618 from Perth to Geraldton, Western Australia. On board were five crew and 57 passengers. For this flight, the captain was the pilot flying (PF) and the first officer was the pilot monitoring (PM).¹

The pre-flight crew briefing identified the possibility of encountering rain showers and turbulence en route, requiring intermittent illumination of the seat belt signs. The flight crew also discussed the option to conduct an area navigation (RNAV) approach into Geraldton. The flight departed at 0717 Western Standard Time,² which was about 5 minutes behind schedule due to a period of heavy rain delaying the boarding of passengers.

Following a normal departure and climb, with a slight diversion to avoid weather, NHC levelled at flight level 260.³ At 0738, after about 8 minutes in the cruise, the flight crew received a master warning alert consisting of a red light and a triple-chime. At the same time, an 'excessive cabin altitude' warning and associated emergency procedure displayed on the multi-function display unit (MFDU). The excessive cabin altitude emergency procedure for the flight crew required them to:

- fit oxygen masks
- establish flight crew communication
- descend.

The flight crew donned their oxygen masks, established effective communication with each other and then, at 0739, commenced the procedure for an emergency descent.

The cabin supervisor observed the seat belt sign illuminate and, believing it may be indicating possible turbulence, instructed the other cabin crew to secure the galley. At about this time, one of the cabin crew reported hearing an unusual sound from the flight deck. The cabin supervisor identified the sound as consistent with the flight crew using oxygen masks and directed the cabin crew to prepare for possible decompression procedures. One cabin crew member went to the rear of the aircraft and one remained at the forward station, with the cabin supervisor. The cabin crew then secured themselves in their seats. Shortly after, the flight crew conducted a cabin announcement (PA) 'attention cabin crew, descent, descent, descent'.

After about 30-60 seconds, when the cabin oxygen masks did not deploy as was expected, the cabin supervisor contacted the flight crew to inform them of the situation. The flight crew reported looking at the cabin altitude indication, and noted it was increasing but had not yet reached the altitude where the masks would automatically deploy. In order to minimise communication with the cabin, during a period of high workload, they elected to manually deploy the oxygen masks.

Once the masks had deployed, the cabin crew commenced their aircraft decompression procedure whereby they direct the passengers to 'fit oxygen and tighten seat belts'. The forward cabin crew member reported that, when they pulled on the lanyard to initiate the oxygen flow, one of the masks separated and fell to the floor. They fitted the remaining two masks however, they believed there was no oxygen flow. During this time, the flight crew conducted a PAN PAN call⁴ and continued with their emergency descent procedure.

¹ Pilot flying (PF) and pilot monitoring (PM) are procedurally assigned roles with specifically assigned duties at specific stages of a flight. The PF does most of the flying, except in defined circumstances; such as planning for descent, approach and landing. The PM carries out support duties and monitors the PF's actions and aircraft flight path.

² Western Standard Time (WST): Coordinated Universal Time (UTC) + 8 hours.

³ Flight level: at altitudes above 10,000 ft in Australia, an aircraft's height above mean sea level is referred to as a flight level (FL). FL 260 equates to 26,000 ft.

⁴ PAN PAN: an internationally recognised radio call announcing an urgency condition which concerns the safety of an aircraft or its occupants but where the flight crew does not require immediate assistance.

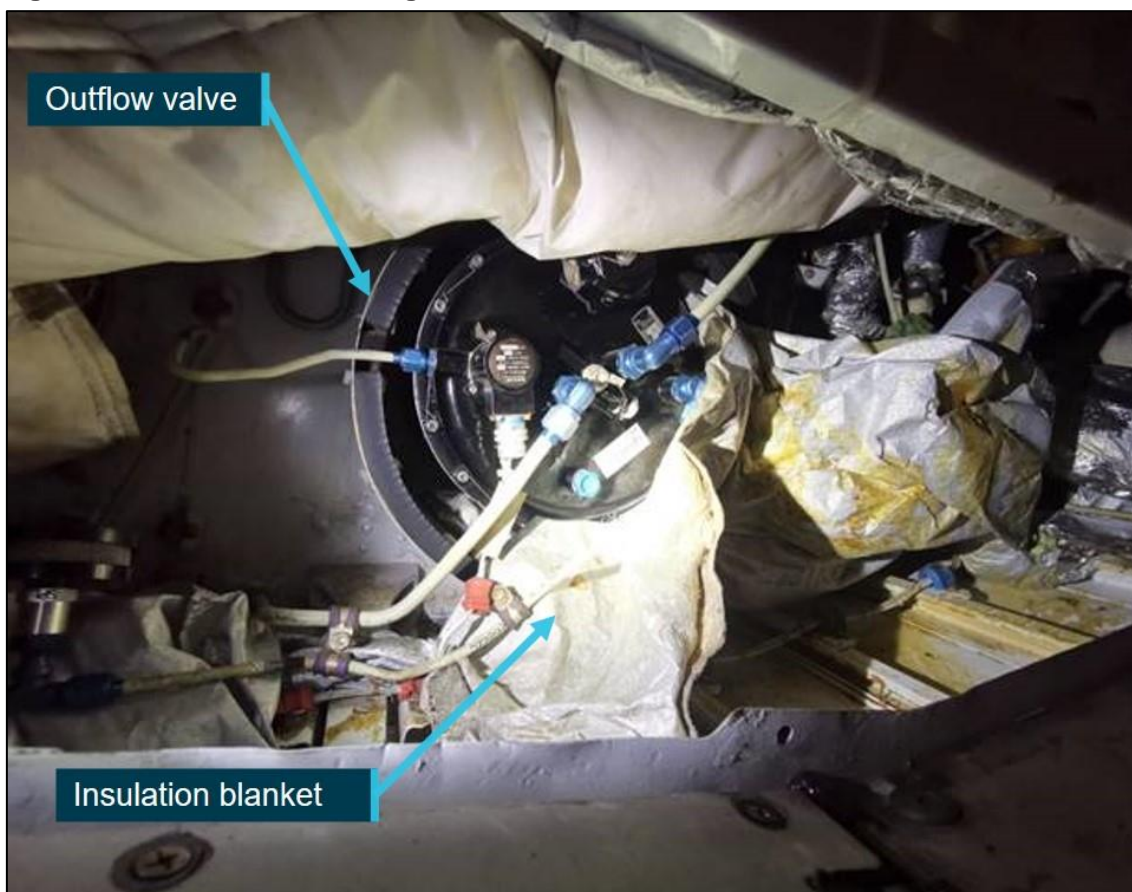
At 0743 the excessive cabin altitude warning extinguished and the flight crew levelled NHC out at an altitude of about 9,000 ft. The PM made a PA to the cabin that oxygen was no longer required. Due to their proximity and desire to avoid a return flight at low level through showers and possible turbulence, the flight crew elected to continue to Geraldton. A short time later, the PF made a PA and advised the cabin the reason for the emergency descent and that they would be continuing to Geraldton. The cabin crew checked the passengers for any injuries, or the need for further oxygen, and then prepared the cabin for landing.

The aircraft landed at Geraldton at 0804, followed by a normal taxi and shutdown. Prior to disembarking the aircraft, the PF stood at the front of the cabin, further detailed the event and offered that passengers could approach any flight, cabin or ground crew if they had any questions or concerns. There were no injuries to crew or passengers.

Post-flight maintenance

A post-flight maintenance inspection identified that an insulation blanket had become wedged in the secondary (air) outflow valve, affecting pressurisation (Figure 1).

Figure 1: Insulation blanket caught in the outflow valve



Source: Network Aviation, annotated by ATSB

Context

Pressurisation system

The cabin altitude (pressure) indications are located in the flight deck, in an overhead panel (Figure 2). Cabin altitude is regulated by the primary and secondary outflow valves, which are located at the pressure bulkhead at the rear of the forward cargo compartment. The secondary

outflow valve is located alongside the primary outflow valve. The valves operated together to control cabin altitude, in either automatic or manual mode. For this flight, the cabin altitude would have been at about 4,000 ft, for the corresponding cruise altitude of FL 260. An excessive cabin altitude warning activates at 10,000 ft.

Figure 2: Cabin altitude indicator



Source: Network Aviation, annotated by ATSB

The ingested insulation blanket prevented the modulation of one of the outflow valves, affecting cabin pressure control. This resulted in a gradual cabin altitude increase, until the flight crew were alerted, once the cabin altitude had exceeded 10,000 ft.

A review of the flight data for this flight identified the time and aircraft altitude when the excessive cabin altitude warning activated and deactivated however, the recorded flight data did not include any cabin altitude parameters. Therefore, the maximum cabin altitude (pressure) could not be determined.

Oxygen system

The oxygen system in the Fokker 28 Mk 0100 (Fokker 100) consists of three sub-systems. The flight crew oxygen system was available when required and was a standalone system of storage and distribution, which supplied oxygen for up to three crew. The portable oxygen system, which consisted of a cylinder and mask, was located near the forward cabin crew station. It was typically administered by cabin crew and was available to anyone on board. The primary oxygen system was a 'fixed drop-down' system and provided oxygen to the passengers and cabin crew.

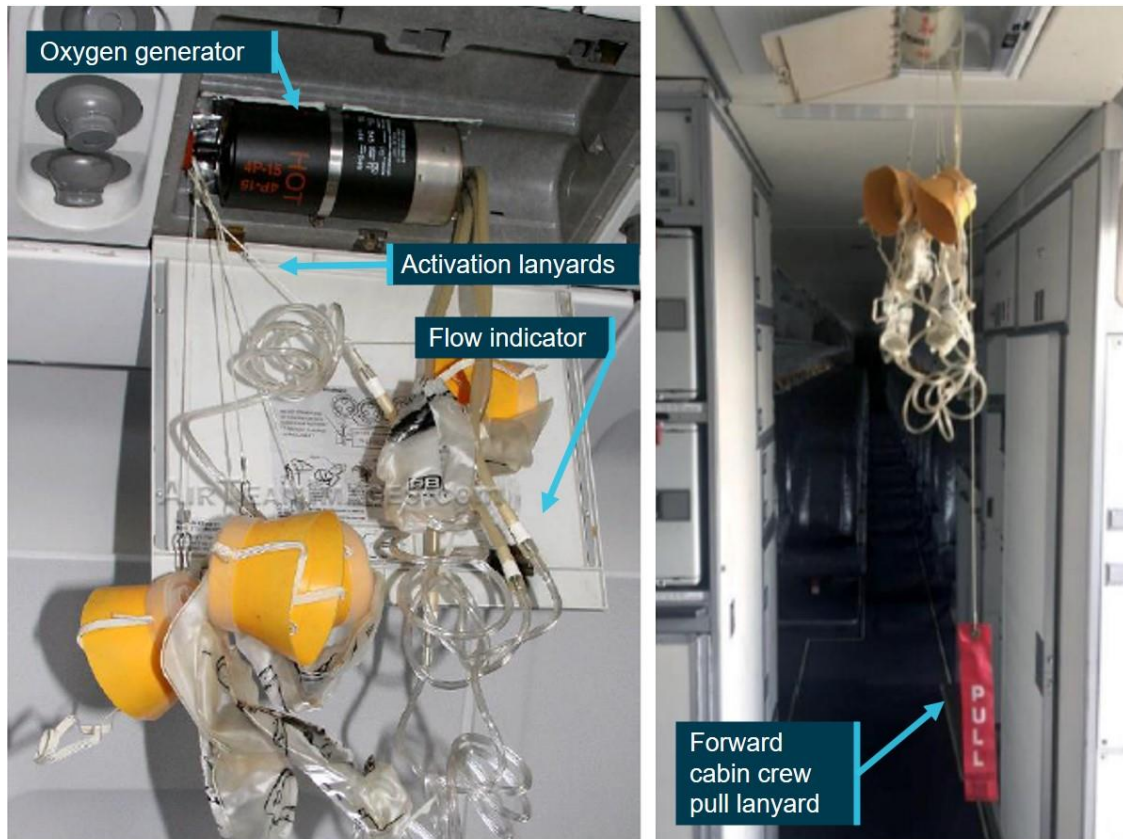
There were drop-down systems located above every seat group, in the toilets and above the cabin crew seats. Each location consisted of a chemical oxygen generator, supplying the drop-down masks. A spare mask was available at each location. That is, three masks were available above each dual-seat group, each cabin crew station and in the toilets. Four masks were available for each 3-bay seat group. The forward cabin crew system also had a 'pull' lanyard extension, to enable the seated cabin crew to reach the masks, as the unit was not directly overhead (Figure 3).

The chemical oxygen generator consisted of a sodium chlorate core, along with some other trace elements. Application of heat, via the firing mechanism, initiated a chemical reaction that resulted in the production of oxygen. Once the chemical reaction has been commenced, it could not be stopped and oxygen supply generally lasted 10-20 minutes. This allowed sufficient time for the aircraft to descend to an altitude where oxygen was no longer required, typically at, or below, 10,000 ft.

In the Fokker 100, the drop-down masks deploy automatically in the event of the cabin altitude exceeding 14,000 ±500 ft. The flight crew can also manually deploy the drop-down masks at any point. Network's procedures for flight above FL 250 provided flight crew discretion of cabin oxygen deployment between 10-14,000 ft cabin altitude.

Whether automatically or manually deployed, the drop-down overhead panel will open and the masks will partly drop, being held up by lanyards. When any mask is pulled toward the individual, the lanyard pulls a safety pin at the firing mechanism, initiating the oxygen generation. The bag may or may not inflate, depending on the individual's breathing rate. However, an in-line green indicator, located in the tube of each mask, confirms the flow of oxygen.

Figure 3: Cabin oxygen system



Source: Network Aviation, annotated by ATSB

When asked how they assessed that the forward cabin crew oxygen system was not working, the cabin supervisor advised:

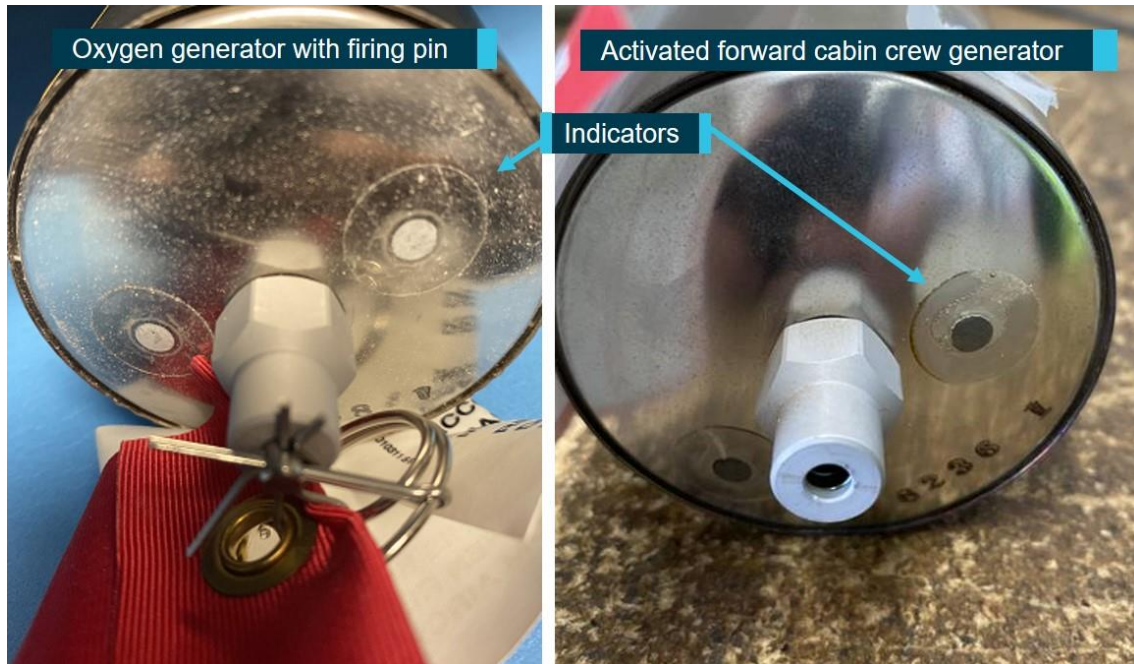
- they could not feel any airflow
- the mask did not inflate
- they could not hear any airflow.⁵

Post-occurrence maintenance included replacement of oxygen generators where passengers had been located and refitting of the system on unoccupied seats, where the generator had not been activated. Network's maintenance department advised that the forward crew oxygen generator

⁵ Following the occurrence, the rear cabin crew reportedly advised they knew their mask was working as they could 'hear' the oxygen flowing.

had been activated, evidenced by the configuration of the firing mechanism and colour-change of the chemical indicator dots (Figure 4).⁶

Figure 4: Oxygen generator firing pin and activated forward cabin crew generator



Source: Network, annotated by ATSB

With regard to the detached oxygen mask, Network advised it was not able to determine if the mask had separated due to it being pulled, or if it had not been connected at last maintenance. Irrespective of the detached mask, Network also advised that oxygen should have flowed to the remaining masks in that unit. Further, the cabin crew had the option to use any spare passenger masks.

Explosive, or rapid, decompressions (a rate greater than 7,000 ft/min) are very rare. The majority of decompression events are 'gradual', stemming from issues such as leaking door seals, incorrect system mode selection by flight crew and mechanical-related problems. In many cases, the oxygen system is not required.

[AR-2008-075-1](#) *Staying safe during an aircraft depressurisation* (passenger information bulletin) and [AR-2008-075-2](#) *Aircraft depressurisation* (cabin crew information bulletin) were published by the ATSB to provide comprehensive information regarding depressurisation and oxygen system use.

Insulation blanket information

The insulation blankets installed on the Fokker F100 are made from glass fibre with a foil outer covering. They are located throughout the fuselage and provide thermal insulation⁷ and acoustic damping. Reinforcement strips are fitted on the underside, to prevent sagging of the insulation blanket against the aircraft skin, where moisture may become trapped. The insulation blankets are fixed to the airframe structure via plastic ties (Figure 5 and Figure 6). The aircraft maintenance manual (AMM) tasks 25-53-00-000-814A *Remove the insulation blanket assemblies* and

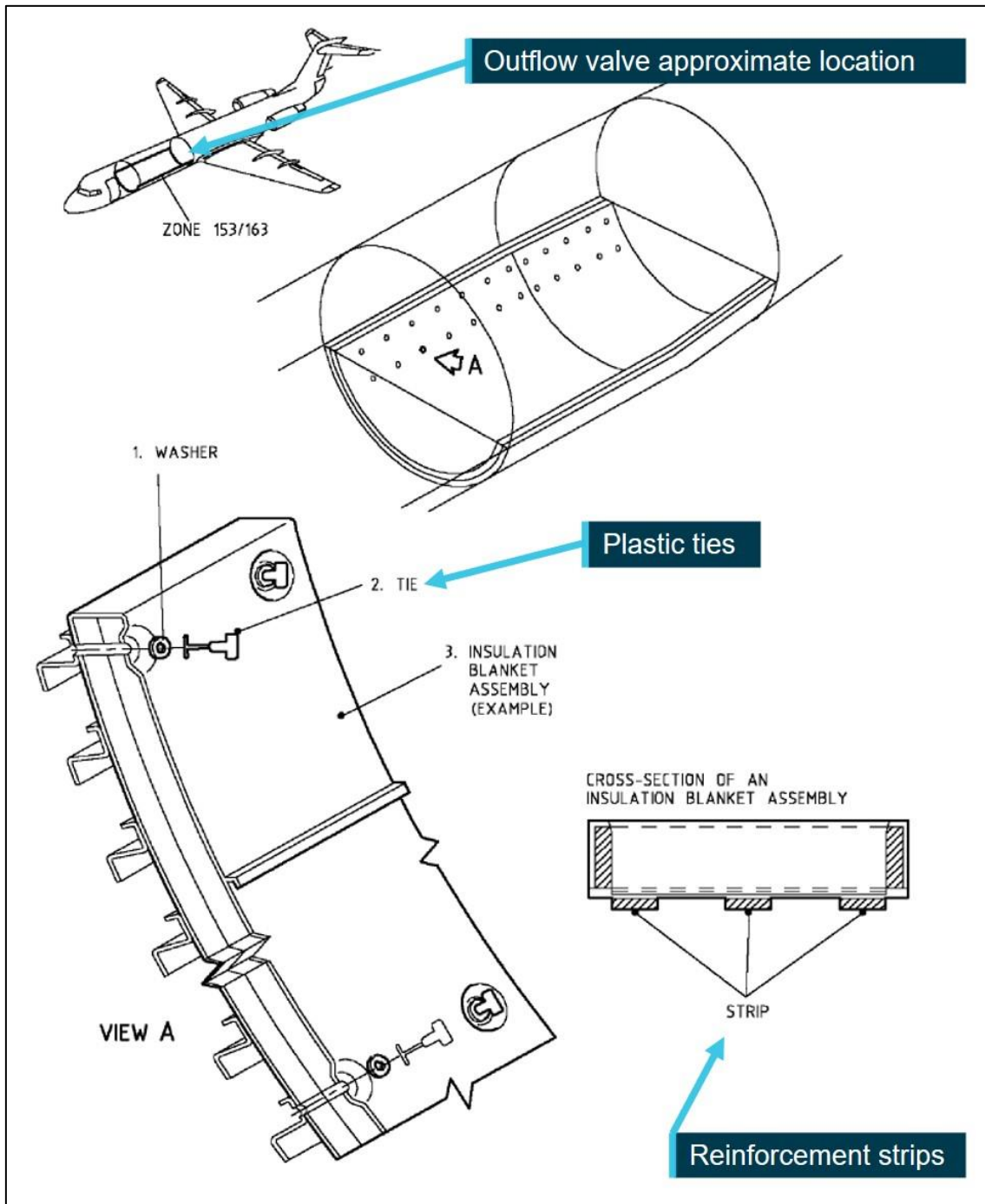
⁶ Heat is generated during the oxygen generation chemical reaction, which will change the indicator dots from white to black.

⁷ Thermal insulation includes preventing the cargo area and components of the aircraft, such as the water system, from freezing during flight.

25-53-00-400-814-A *Install the blanket assemblies*, provided detailed information on removal, inspection and installation of the insulation blankets.

Insulation blankets were available from the manufacturer, with each being assigned a part number, to suit each location. Alternatively, Service Letter 293 (SL 293) permitted local manufacture, detailing manufacture process and installation procedures. SL 293 advised that the insulation blankets were to be installed in accordance with 'AMM Task 25-28-00-400-814A and/or with double-sided tape' (of a defined specification). SL 293 did not reference the requirement for the reinforcement strips.

Figure 5: Insulation blanket location and installation



Source: Network Aviation, annotated by ATSB

Figure 6: Typical insulation blanket installation using the plastic ties



Source: Network Aviation, annotated by ATSB

Maintenance procedures

NHC had recently undergone heavy maintenance at Fokker Services Asia (FSA), in Singapore.⁸ The aircraft returned to line on 28 July 2020 and had flown 12 sectors at the time of the occurrence. The heavy maintenance check included internal zonal inspection of the forward cargo compartment (job instruction card (JIC) 062110-00-01) and visual inspection of specific structural locations nearby, and including, the outflow valve area (JIC 533005-00-01). Both JICs advised

⁸ Fokker Services Asia is part of Fokker Services, which is the current Type Certificate Holder for this aircraft type.

that linings and sound proofing⁹ was to be ‘removed as required’ to gain access to the inspection locations.

Post-occurrence actions

On 11 August 2020, the flight crew of another Network Fokker 100, reported a slower than expected rate of cabin altitude (pressure) reduction during descent. When the engineers gained access to the outflow valve area, they noted the insulation blanket had migrated and was covering the secondary outflow valve, with parts of the blanket ‘starting to migrate toward the valve opening’. Troubleshooting identified the defect was associated with the outflow valve, which was replaced however, the event also identified another insulation blanket that was incorrectly secured.

On 12 August 2020, following the identification of the incorrectly installed insulation blankets on two aircraft, Network initiated a fleet-wide inspection of insulation blankets located in the area of the primary and secondary outflow valves. The inspection identified that only 1 of their 17 aircraft had the insulation blankets correctly installed, with two aircraft having no insulation blankets fitted. Another aircraft was undergoing heavy maintenance at FSA and already had the insulation blankets removed, so its status could not be determined.

Due to unavailability of the plastic ties and replacement insulation blankets, Network received approval from Fokker Services to temporarily install the blankets under the outflow valves with a defined double-sided tape. These blankets were to be inspected fortnightly, until the replacement blankets and plastic ties were available.

Following notification of the issue from Network, FSA conducted an investigation into how the insulation blankets came to be installed without the required plastic ties. They identified that the JICs for the zonal inspections did not reference the associated AMM tasks for removal, inspection and installation of the insulation blankets.

Flight and cabin crew communications

A sterile flight deck environment incorporates procedures for safety critical phases of flight, such as take-off and landing, when non-essential activities and communications are not permitted. While it is primarily focused on communication between flight crew members, it also applies to cabin crew contact with the flight deck. In this occurrence, the depressurisation did not occur during a sterile flight deck period.

Network’s emergency procedures manual stated that, communication of safety-related information in an emergency should be ‘clear, concise and direct’.

The flight crew reported that, after the ‘descent’ cabin announcement (PA), they would not expect to hear from the cabin until after the ‘oxygen no longer required’ PA. The cabin supervisor advised that the cabin crew procedure was to instruct the passengers to fit oxygen and tighten seat belts, once the masks had deployed. In addition, cabin crew were trained to contact the flight deck if the oxygen had not deployed after 3 minutes following the descent announcement. The cabin crew reported that, as they did not have any cabin altitude information and the masks had not deployed as anticipated, they elected to contact the flight crew to inform them of the situation.

Previous occurrences

A search of the Civil Aviation Safety Authority (CASA) Service Difficulty Report and ATSB databases, between 1 January 2000 and 1 October 2020, did not identify any occurrences of an insulation blanket being ingested in an outflow valve of a Fokker 100. A search of the ATSB database identified an insulation blanket-associated depressurisation occurrence involving a Boeing 737, in 2018. The cargo flight, with three persons on board, identified the pressurisation

⁹ The terms soundproofing and insulation blankets are interchangeable for this aircraft type.

issue on climb. The crew donned oxygen and conducted an emergency descent. The aircraft then returned to the departure airport and for a normal landing.

Safety analysis

Introduction

During cruise, the flight crew were alerted to increasing cabin altitude and subsequently initiated an emergency descent, to an altitude of about 9,000 ft, as per their procedures. The crew then elected to continue to their destination, avoiding a low-altitude return flight in poor weather, and conducted a normal landing. Post-occurrence inspection identified that an insulation blanket had been ingested into one of the outflow valves, affecting the aircraft's ability to maintain cabin altitude (pressure).

This analysis will discuss the maintenance procedures and practices that resulted in the insulation blanket not being correctly secured to the aircraft structure and the communication between the cabin and flight crew.

Maintenance procedures

The aircraft had recently undergone heavy maintenance checks, which included zonal structural inspections. The job instruction cards (JICs) detailed the requirements for the structural inspections and advised that the insulation blankets could be 'removed as necessary' but there was no reference to the aircraft maintenance manual insulation blanket removal and installation procedures.

From the available information, it was not possible to determine how long the insulation blankets had been unsecured. However, based on the maintenance history, they are unlikely to have been installed correctly when the aircraft returned to service following the most recent heavy maintenance checks.

The majority of the aircraft's insulation blankets are located behind panels and covers where, movement in the event of not being correctly installed, is generally hindered. In contrast, the insulation blankets located in the same area as the outflow valves, are subject to the varying rates of airflow required to modulate cabin pressure and, if not correctly secured, are free to migrate.

Service Letter 293 did not identify the need for reinforcement strips during manufacture and had offered double-sided tape as an alternative way of securing the insulation blankets to the aircraft structure. While not directly linked with this occurrence, the inconsistency between the service letter and the AMM increased the risk of incorrect installation of insulation blankets. Further, insulation blankets without the reinforcement strips not only allowed them to sag, and come in contact with the aircraft skin, but the increased flexibility meant they were more likely to be ingested into an outflow valve.

In this occurrence, it could not be determined if the insulation blanket was original from the factory or locally manufactured, as per the service letter. Whichever the case, it was apparent that the insulation blanket had not been correctly secured, highlighting the importance of consistency across documentation, to reduce the risk of misinterpretation.

Industry best practice recommends that, when removing a part or component, to not presume it had been correctly installed previously. In all cases, the relevant maintenance documentation should be referred to, ensuring the part or component is being installed to the current specifications.

Flight and cabin crew communication

With the introduction of reinforced cockpit doors, it has been recognised that this has had the effect of introducing an additional psychological barrier between flight crew and cabin crew. There has been a history of misunderstanding and hesitancy by cabin crew of informing flight crew of

critical and sometimes life-threatening situations occurring in or external to the cabin of the aircraft.¹⁰

In this occurrence, the action of the cabin supervisor to question a possible safety issue was in line with industry expectations and procedures. While they may have queried the lack of oxygen masks sooner than as per their training, it was still in line with safety best practice. Further, there was no requirement by the flight crew to respond if they were in a critical stage of flight.

¹⁰ FAA AC 120-48A 'Communication and Coordination Between Flight Crewmembers and Flight Attendants', dated 27 January 2020.

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 depressurisation and emergency descent involving a Fokker 100, registered VH-NHC, 167 km south-south-east of Geraldton Airport, Western Australia, on 10 August 2020.

Contributing factors

- While the manufacturer's instructions for the zonal inspections detailed that installation blankets could be removed 'as necessary', they did not reference the insulation blanket installation procedure. This resulted in insulation blankets not being secured to the structure. [Safety issue]
- An insulation blanket became wedged in the secondary outflow valve, affecting aircraft pressurisation and resulting in the requirement for an emergency descent.

Other factors that increased risk

- The instructions for local manufacture and installation of insulation blankets were not consistent with the aircraft maintenance manual procedures, which increased the risk of migration and ingestion into an outflow valve.

Other findings

- The cabin supervisor had no way to determine that the cabin altitude had not yet passed the threshold for oxygen mask deployment. Therefore, their action in choosing to contact the flight deck during the emergency descent, to inform the flight crew that the masks had not deployed, was consistent with safety best practice.

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 will be provided separately on the ATSB website on release of the final investigation report, to facilitate monitoring by interested parties. Where relevant, the safety issues and actions will be updated on the ATSB website after the release of the final report as further information about safety action comes to hand.

Maintenance publications

Safety issue description

While the manufacturer's instructions for the zonal inspections detailed that installation blankets could be removed 'as necessary', they did not reference the insulation blanket installation procedure. This resulted in insulation blankets not being secured to the structure.

Issue number:	AO-2020-041-SI-01
Issue owner:	Fokker Services
Transport function:	Aviation: Maintenance
Current issue status:	Open – Safety action pending
Issue status justification:	To be advised

Proactive safety action taken by Fokker Services

Action number:	AO-2020-041-NSA-002
Action organisation:	Fokker Services
Action status:	Monitor

Fokker Services advised the ATSB, on 23 October 2020, that 'to avoid uncertainty' they were 'undertaking actions' to add the insulation blanket removal and installation maintenance manual references to the relevant job instruction cards. In addition, the applicable maintenance manual task 'will be amended to incorporate details of the reason for the reinforcement strips [being] attached to the insulation blankets'. Further, Fokker Services will revise Service Letter 293 'to state under which conditions a Part 145 company may fabricate new blankets'.

On 18 December 2020, Fokker Services advised the amended Service Letter would be published by the end of December 2020 and the revisions for the job instruction cards and applicable maintenance procedures will be completed by March 2021. In addition, they plan to issue a Service Engineering Digest article about insulation blankets before the end of the first quarter 2021.

ATSB comment

The ATSB welcomes the intended safety action by Fokker Services. Once implemented, it is expected to adequately address the safety issue.

Proactive safety action taken by Fokker Services Asia

Action number:	AO-2020-041-NSA-003
Action organisation:	Fokker Services Asia
Action status:	Closed

Fokker Services Asia advised the ATSB that, in addition to their recommendation to Fokker Services for the clarification of maintenance procedures documentation, they also developed a maintenance notice, released on 24 September 2020. This maintenance notice highlighted that, when any task is carried out in the outflow zone area, the insulation blanket is to be inspected for correct manufacture, condition and is to be installed in accordance with the maintenance procedures. Further, this notice was to be attached to the relevant work packs and job instruction cards, until such time as they had been amended.

Proactive safety action taken by Network Aviation

Action number:	AO-2020-041-NSA-004
Action organisation:	Network Aviation
Action status:	Closed

Network Aviation (Network) conducted a fleet-wide inspection, commencing 12 August 2020, which identified multiple aircraft with incorrectly installed insulation blankets in the outflow area. From this, Network liaised with Fokker Services to establish a temporary installation procedure, including fortnightly inspection, until sufficient spare parts were available for a fleet-wide replacement of the outflow valve area insulation blankets. Further, Network advised the ATSB that, in addition to the blanket replacement program, their engineers were advised of the importance of following the correct installation procedures.

Proactive safety action taken by the Australian Transport Safety Bureau

Action number:	AO-2020-041-NSA-005
Action organisation:	Australian Transport Safety Bureau
Action status:	Closed

During the course of the investigation, Virgin Australia and Alliance Airlines had been identified as other operators who had their Fokker 100 aircraft maintained by Fokker Services Asia. Subsequently, on 27 October 2020, and in the interest of transport safety, the ATSB contacted these operators to advise them of the occurrence. In response, both operators advised they were conducting an inspection of their fleet.

On 15 December 2020, Virgin Australia notified the ATSB that their inspection and rectification of their fleet had been completed. In addition, they were implementing a procedure for repeated inspection of the insulation blankets at the outflow valves, at an agreed interval.

On 5 January 2021, Alliance Airlines provided an update to the ATSB. The fleet inspection had identified some insulation blankets as not being correctly installed. Alliance advised they 'will continue to conduct this fleet inspection until complete'.

General details

Occurrence details

Date and time:	10 August 2020 – 0740 WST	
Occurrence category:	Incident	
Primary occurrence type:	Depressurisation and emergency descent	
Location:	167 km south-south-east of Geraldton Airport, Western Australia	
	Latitude:30° 14.8680' S	Longitude:115° 9.3300' E

Aircraft details

Manufacturer and model:	Fokker M28 MK 0100	
Registration:	VH-NHC	
Operator:	Network Aviation PTY LTD	
Serial number:	11481	
Type of operation:	Air Transport High Capacity - Passenger	
Activity:	Commercial air transport - Scheduled - Domestic	
Departure:	Perth, Western Australia	
Destination:	Geraldton, Western Australia	
Persons on board:	Crew – 5	Passengers - 57
Injuries:	Crew – Nil	Passengers - Nil
Aircraft damage:	None	

Sources and submissions

Sources of information

The sources of information during the investigation included the:

- flight crew and cabin supervisor
- Network Aviation
- Civil Aviation Safety Authority
- Fokker Services
- Fokker Services Asia

References

Australian Transport Safety Bureau 2008, *Staying safe during an aircraft depressurisation*, Safety publication AR-2008-075(1).

Australian Transport Safety Bureau 2008, *Aircraft depressurisation*, Safety publication AR-2008-075(1).

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 flight crew and cabin supervisor, Network Aviation, Civil Aviation Safety Authority, Fokker Services, Fokker Services Asia, Onderzoekbaad (Dutch Safety Board) and the Transport Safety Investigation Bureau of Singapore.

Submissions were received from:

- Network Aviation
- Civil Aviation Safety Authority
- Fokker Services
- Transport Safety Investigation Bureau of Singapore.

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

Australian Transport Safety Bureau

About the ATSB

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

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

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

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

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

Purpose of safety investigations

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

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

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

Terminology

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