



Australian Government

Australian Transport Safety Bureau

Safety Advisory Notice

To industry stakeholders

Number: AO-2017-005-SAN-028

Upper torso restraints can reduce injuries and save lives. Are they fitted to all seats in your aircraft?

Accident experience has provided substantial evidence that the use of upper torso restraints reduces the risk of serious injuries to the head, neck, and upper torso of aircraft occupants, and they reduce the rate of fatalities for occupants involved in otherwise survivable aircraft accidents.

What happened

On 10 January 2017 a Cessna 172M, registered VH-WTQ, departed Agnes Water aeroplane landing area (ALA), Queensland on a passenger charter flight to a beach ALA on Middle Island. While the pilot was conducting an airborne inspection of the beach, at a height of about 60 ft, the aircraft had a total engine power loss.

The aircraft impacted the beach and was destroyed. One of the rear-seat passengers was fatally injured and the other three occupants sustained serious injuries.



Wreckage of VH-WTQ (Source: ATSB)

Identified safety issue

The ATSB identified that the rear seats of VH-WTQ were not equipped with upper torso restraints (UTRs). An UTR is a shoulder strap or harness, and when fitted in addition to a lap belt makes an aircraft's passenger restraint similar to a normal seat belt in a car. Had such restraints been fitted, the rear-seat passengers' injuries would very likely have been less severe.

A substantial body of research has demonstrated that wearing UTR in small aircraft significantly reduces the severity of injuries compared to wearing only a lap belt. In particular, UTRs reduce the risk of head, neck and upper body injuries, associated with the person's upper body flailing forward, and potentially striking seats, the side of the aircraft or other objects.

Currently, small aeroplanes manufactured after 12 December 1986 and helicopters manufactured after 17 September 1992 are required to have UTRs fitted for all seats. Based on the substantial body of research, there have been many recommendations over the years for UTRs to be fitted for all seats in small aeroplanes and helicopters manufactured before these dates (rather than just the front seats). These recommendations have been made by investigation agencies in the United States, Canada, the United Kingdom and Australia.

In addition, some aircraft manufacturers have published safety information letters and service bulletins, encouraging the fitment of UTRs to passenger seats that did not have UTRs fitted when the aircraft were manufactured. Options for retrofitting UTRs are available for many models of small aircraft.

Safety advisory notice

AO-2017-005-SAN-028: The Australian Transport Safety Bureau strongly encourages operators and owners of small aeroplanes manufactured before December 1986 and helicopters manufactured before September 1992 to fit upper torso restraints to all seats in their aircraft (if they are not already fitted).

Read more about this ATSB investigation: [AO-2017-005](#)

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