



**Office of Transport Safety Investigations**

**BUS INCIDENT FACTUAL FINDINGS  
FIRE INVOLVING BCI 29 SEAT COACH  
BELLIMBOPINNI, NSW**

**19 June 2013**



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# THE OFFICE OF TRANSPORT SAFETY INVESTIGATIONS

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The Office of Transport Safety Investigations (OTSI) is an independent NSW agency whose purpose is to improve transport safety through the investigation of accidents and incidents in the rail, bus and ferry industries. OTSI investigations are independent of regulatory, operator or other external entities.

Established on 1 January 2004 by the Transport Administration Act 1988, and confirmed by amending legislation as an independent statutory office on 1 July 2005, OTSI is responsible for determining the causes and contributing factors of accidents and to make recommendations for the implementation of remedial safety action to prevent recurrence. Importantly, however, OTSI does not confine itself to the consideration of just those matters that caused or contributed to a particular accident; it also seeks to identify any transport safety matters which, if left unaddressed, might contribute to other accidents.

This OTSI investigation was conducted under powers conferred by the Transport Administration Act 1988 and the Passenger Transport Act 1990. OTSI investigators normally seek to obtain information cooperatively when conducting an accident investigation. However, where it is necessary to do so, OTSI investigators may exercise statutory powers to interview persons, enter premises and examine and retain physical and documentary evidence.

It is not within OTSI's jurisdiction, nor an object of its investigations, to apportion blame or determine liability. At all times, OTSI's investigation reports strive to reflect a "Just Culture" approach to the investigative process by balancing the presentation of potentially judgemental material in a manner that properly explains what happened, and why, in a fair and unbiased manner.

## Abstract

While driving north on the Pacific Highway, just north of Kempsey, the owner / driver of an empty 29 seat BCI coach smelt burning. Initially the driver thought the smell came from outside the vehicle but, when he looked in the interior rear view mirror, he noticed a slight smoke haze to the rear of the passenger area. The driver slowed the coach and, at the first opportunity, stopped on the grass verge. The stopping location was in the hamlet of Bellimbopinni. The driver exited the coach, taking a handheld fire extinguisher with him, and inspected the engine compartment. Everything appeared to be in order with no evidence of fire. The driver closed the engine hatch and then noticed smoke issuing from the door at the front of the vehicle. He proceeded back to the front and stepped onto the first stair. The smoke was thick, and flames were also visible in the smoke. The driver discharged the fire extinguisher into the coach's interior. At this juncture, a passing motorist who had stopped to assist, grabbed the driver from behind, pulled him clear of the bus, and escorted him away from the burning vehicle across the road and into a private roadway entrance. As they crossed the road, the coach's windows blew out and the heat from what was now an intense blaze could be felt by the driver.

The fire was probably caused by an electrical fault in the wiring harness under the front floor of the coach or possibly in the dashboard. The fire spread rapidly after the bus came to a stand and consumed the dashboard and the interior of the coach, including much of the flooring and roofing materials. However, the engine compartment survived unscathed.

## The Incident

The coach was being transferred empty from Sydney to Brisbane where it was due to embark a tour group. The driver had spent the night of 18 June at Crescent Head near Kempsey. On the morning of Wednesday 19 June, he filled the fuel tank and made his way to Kempsey. After visiting a family member in Kempsey for about an hour, he continued his journey north. The following sequence of events occurred:

- At just before 1100 the coach departed Kempsey with only the driver on board.

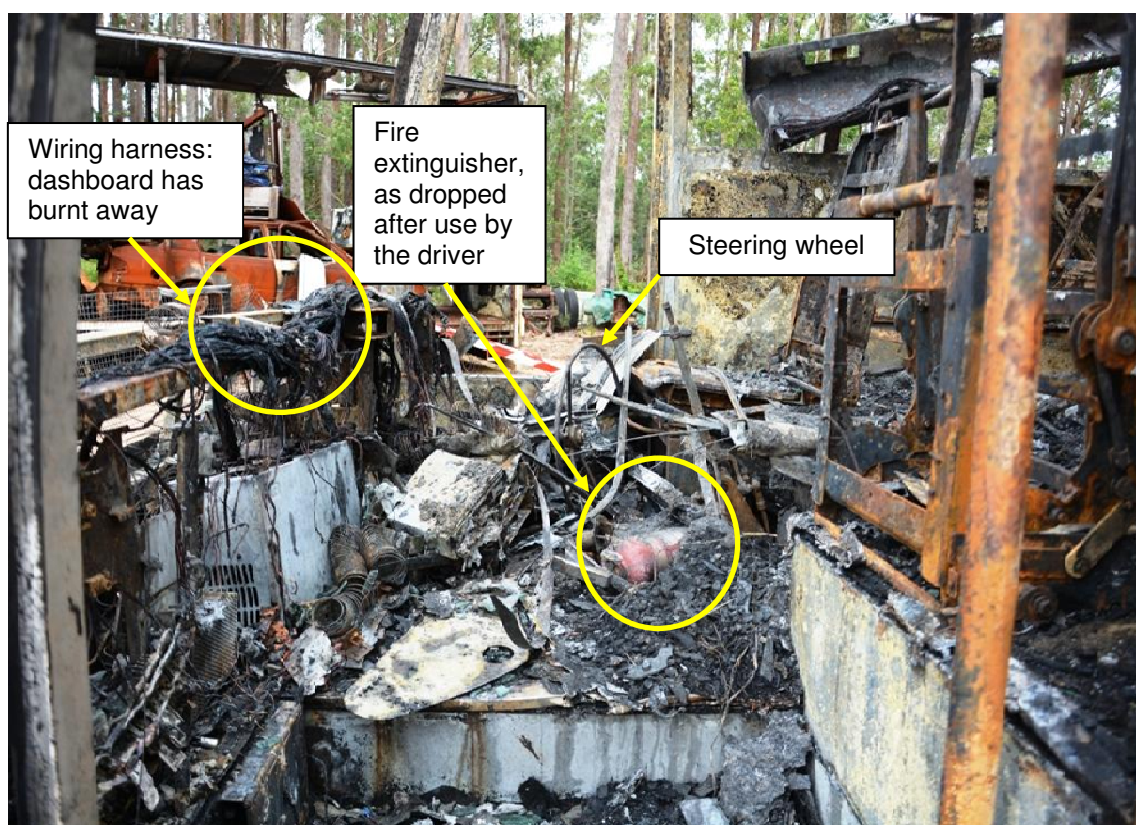
- The coach proceeded through Frederickton without incident and rejoined the Pacific Highway at the north end of the Kempsey bypass.
- Shortly after 1100 the driver smelt smoke.
- The driver, who had his window open, initially thought that 'burning off' was occurring in the vicinity and looked around on either side of the road for the source.
- The driver then looked in his interior rear view mirror and observed 'slight smoke' inside at the rear of the coach.
- The driver pulled over fully onto the grass verge at the first opportunity, an estimated 200 to 300 metres further on from where he had first observed smoke.
- The driver switched off the engine and opened the electrically operated plug door at the front near side of the coach.
- The driver left his seat and exited the vehicle, collecting the fire extinguisher and kicking his bag out of the coach as it had got in the way. He ran straight to the rear of the coach where he cautiously opened the engine access hatch; there was no sign of fire with everything appearing to be normal (see Photograph 1).



**Photograph 1:** Rear of coach and engine compartment untouched by fire



- The driver then looked around the side of the coach back to where he had come. 'Plumes of black smoke where pouring out the door.'
- The driver returned to the door and stood on the bottom step and 'half onto the second'. The driver could feel 'intense heat' and could see flames to his right at seat height.
- The driver discharged the hand-held fire extinguisher into the interior of the coach. (Photograph 2 shows the location of the fire extinguisher after the fire).



**Photograph 2:** View through the door of the coach

- A passing motorist who had stopped to assist grabbed the driver from behind, telling him 'come on, we've got to go'.
- The motorist picked up the driver's bag from where it was lying on the ground and they both crossed the road away from the coach.
- When they were about three quarters of the way across the road, the driver 'felt a blast of heat and heard a bang'. The driver turned to see a plume of smoke as the coach 'went up' (in flames).

- The driver and motorist moved along a private driveway off the Princes Highway to keep clear of the smoke. The motorist was concerned about his car parked close to the coach and went to move it. He did not return.
- The driver estimated that the Police arrived a couple of minutes later, an ambulance arrived after a little over 15 minutes and fire fighters arrived after about 20 minutes. Both Rural Fire Service and Fire and Rescue NSW personnel attended and extinguished the fire.
- Ambulance officers administered oxygen to the driver and gave him a check up; otherwise no persons were injured in the incident.

## The Driver

The driver was also the owner, in partnership with his wife, operating as N & M Executive Minis. The driver had road coach industry experience dating back 24 years and had established N & M Executive Minis in 2012, purchasing the coach from BCI in Milperra (Sydney) in November of that year.

## The Coach

The coach was a BCI Proma 'midi coach' of Chinese manufacture. It had been built in May 2007 with a TARE of 5.58 t and was fitted with 29 passenger seats. This is slightly less than the standard 33 seats common on this model and allowed for greater individual passenger space. As well as a driver's seat, the coach had a small fold down 'hostess seat' in the stair area.

The body of the coach was made of steel with fibreglass cladding fixed onto a steel frame. The floor was of plywood with a vinyl covering. The ceiling was of vinyl with front and rear bulkheads of moulded plastic. The seats were upholstered with leather and the windows were hung with curtains made of a 'fire retardant material'.

## Australian Design Rules

Section 17 of Australian Design Rules (ADR) 58/00 *Requirements for Omnibuses Designed for Hire and Reward*, 2006 states that:

*Interior roof lining and other interior trimming shall be of a material not readily flammable with a durable non-absorbent surface, and interior fittings shall be firmly attached to the vehicle.*



Current ADR requirements, in common with international norms, are not prescriptive in regard to the flammability of bus interior construction, fittings and furnishings.

## Vehicle and Site Inspection

An OTSI investigator inspected the bus at a holding yard at Woolgoolga, to which the coach had been transported post incident (see Photograph 3). The investigator also inspected the incident site at Bellimbopinni.



**Photograph 3:** Burnt out coach at the holding yard in Woolgoolga

The site inspection revealed that the grass area where the front part of the coach had been located had been severely burnt (Photograph 4). In contrast, there was less evidence of fire in the remainder of the area where the coach had stood while it burnt.



**Photograph 4:** Incident location

The coach had suffered extensive fire damage with the interior having been totally burnt out (see Photograph 5). The glass from the windows was missing and, excepting where it was shielded by the air conditioning equipment, the fire had consumed the fibreglass roof. The underfloor luggage areas were not touched by fire except for debris that had fallen through as the plywood floor burnt away.



**Photograph 5:** Coach interior



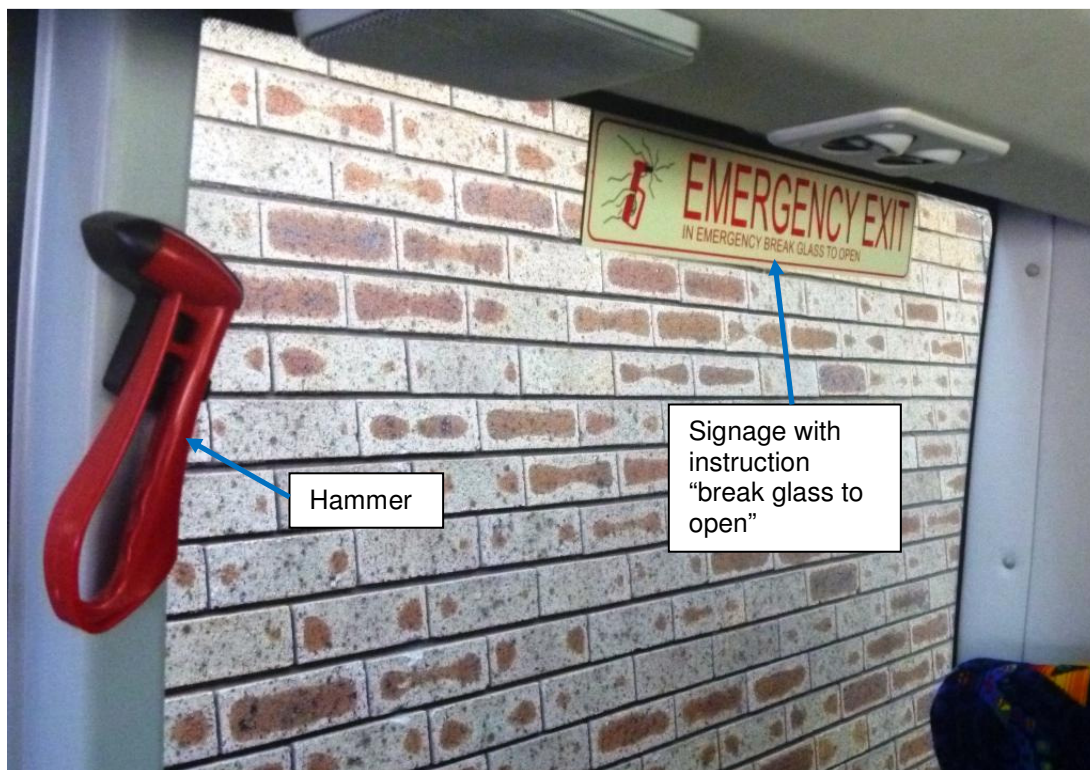
The external rear portion of the coach showed little sign of the fire with the engine compartment being untouched. Likewise, the fuel system including the underfloor tank was intact and had not suffered any fire damage.

## Servicing and Maintenance

There was no evidence that the coach was anything other than properly maintained and no recent work was identified that was likely to have caused or contributed to the fire.

## Emergency Egress

In addition to a manual override operable from both inside and outside the vehicle to allow the plug door to be opened in the event of a power failure, four emergency escape exits were provided. Three hammers located by windows, one on the near side and two on the off side, were available for passengers to break the glass to create an escape route (see Photograph 6).



**Photograph 6:** Emergency exit window

Additionally, there was an escape hatch on the roof centreline towards the rear of the vehicle. The nearside emergency exit window extended down towards floor level with a sliding panel that could be lifted out (see Photograph 7). Once the glass was broken and removed, this provided an easier escape route from the interior of the coach.



**Photograph 7:** Removable sliding panel

## Findings

The examination of the circumstances of this incident indicates that the fire was likely to have been initiated by an electrical fault in the front of the coach, probably in the dashboard or the wiring harness under the floor.

The following safety issues are noted:

- This type of coach only has one door that can be used for immediate emergency exit; the electric plug door at the front near side. The initial seat of the fire was most probably at the front of the bus, i.e., between the passenger seats and the door.

- Passengers may not be familiar with the procedure of using a hammer to break windows. Any passengers with mobility difficulties would find evacuating through a window far from straightforward, even the one with the sliding panel that provided an easier exit route.
- Only a very short time, possibly less than 60 seconds, elapsed between when the driver became aware the fire was located inside the coach and when the coach's interior filled with smoke. The coach's interior was engulfed in flames a very short time later. Had the coach been carrying passengers at the time of the incident they may have had difficulty in evacuating the coach in the available time frame no matter which exit or combination of exits had been used.
- While the interior fittings and furnishings complied with ADR 58.00, the intensity of the fire and the speed at which it took hold and spread raises concerns about the adequacy of the ADR's provisions. This has been a common conclusion to a number of major bus and coach fire investigations conducted by OTSI in recent years.

OTSI has concluded its examination of the circumstances of this incident and has determined that it does not require further investigation under the provisions of Section 46BA (1) of the *Passenger Transport Act 1990*.

A copy of these Findings has been provided to the N & M Executive Minis, BCI and the Roads and Maritime Services (as the NSW Bus Regulator).