



OFFICE OF THE STATE CORONER

FINDINGS OF INQUEST

CITATION: **Inquest into the death of Gryphyn David BRASHER**

TITLE OF COURT: Coroner's Court

JURISDICTION: Toowoomba

FILE NO: TOOW-COR-0000085/07

DELIVERED ON: 14 May 2009

DELIVERED AT: Toowoomba

HEARING DATES: 30 April & 1 May 2009

FINDINGS OF: Coroner Kay Ryan

CATCHWORDS: CORONERS: Inquest – Motor Vehicle Accident – Failure of mechanical actuator – hand brake – steep driveway

REPRESENTATION:

Sergeant M Robinson and Constable K Dearling – appearing to assist the Coroner

Mr Brasher representing the Brasher family and Gryphyn

Mr R Harper of Counsel, instructed by HerbertGeer, representing Ford Australia

Mr S Lynch of Counsel, instructed by Bernays Lawyers, representing Safe T Brakes

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CORONERS FINDINGS AND DECISION

The *Coroners Act 2003* provides in s45 that when an inquest is held into a death, the coroner's written findings must be given to the family of the person who died and to each of the persons or organisations granted leave to appear at the inquest. These are my findings in relation to the death of Gryphyn David Brasher. They will be distributed in accordance with the requirements of the Act and placed on the website of the Office of the State Coroner.

1. Introduction

The purpose of an inquest is to investigate a death to enable the Coroner to find –

- (a) who the deceased person is;
- (b) how the person died;
- (c) when the person died;
- (d) where the person died; and
- (e) what caused the person to die.

The scope of my findings do not include, and indeed I am unable to find under the *Coroners Act 2003*, whether any person is guilty of an offence or is civilly liable for something. I can, however, where appropriate, comment on anything connected with a death which has been investigated and which relates to –

- (a) public health or safety;
- (b) the administration of justice; or
- (c) ways to prevent deaths from happening in similar circumstances in the future.

At the outset, I extend my personal condolences to Mr & Mrs Brasher and trust that these proceedings have assisted in their grieving process following Gryphyn's death.

2. Issues

I have identified the following issues which were addressed at the formal inquest:

- Whether the defect in the quiet cap located in the gear selector assembly of the Ford Explorer vehicle involved in the incident contributed to Gryphyn's death.
- Whether the failure of the circuitry in the vehicle's actuator contributed to Gryphyn's death.
- If yes, to either of the above questions, then should all Ford Explorer models be recalled because of a design fault.
- Did the actions of the employees at Safe-T-Brakes, in not adjusting or repairing the faulty hand brake contribute to Gryphyn's death?
- Whether the parking of the vehicle on a steep driveway contributed to Gryphyn's death.

3. Social History

Gryphyn was 9 years old and, with his four brothers, Harley (11), Seth (9) and twins Ethan and Callum (5) lived with his parents at 29 North Street, Toowoomba.

All the boys went to Gabbinbar State School, with the twins being in the Prep year. Gryphyn was described by his brother Harley as being “probably the best brother I’ve had so far”.

4. The incident

On Friday 17 August 2007, Gryphyn did not go to school with his brothers, as he had an appointment with the doctor for treatment of what was thought were cold sores on his lip. The doctor found that they were not cold sores and that it was just an infection. Gryphyn spent the day at home with his father, Mr Wayne Brasher, just doing things around the house.

Gryphyn went with his father to pick up his brothers from school at around 3.00 pm. When they arrived home, Mr Brasher parked his Ford Explorer in the driveway. He put the vehicle in park, put on the handbrake and took the keys out of the ignition.

From all accounts, Seth and Callum exited the vehicle, taking their school bags up to the house. Gryphyn helped Mr Brasher unload other school bags and then the two of them walked to the bottom of the driveway to empty the mailbox. The vehicle was parked on an extremely steep driveway measured as having a grade from 18.6% to 23.6% (twice the steepness of the Toowoomba range).

Both Harley and Ethan were still in the vehicle. Ethan is hearing impaired and has delayed development. Ethan liked to imitate his father and mother driving the vehicle and Mr Brasher had asked Harley to help get Ethan out of the vehicle. Ethan had climbed into the front seat and Harley was in the back seat. Harley says that he thought Ethan “pulled up the handbrake”, although he really didn’t see what Ethan actually did. Harley did state that the handbrake was in the “up” position and the gear stick was in Park. He did know that when the gear stick was in Park, this would stop the vehicle from moving.

It is not clear whether Ethan moved the gear shift lever or interfered in any other way with the gear shift assembly or hand brake.

It was then that the vehicle started moving backwards. Harley shouted to Gryphyn to get out of the way, but he didn’t hear and the vehicle ran over Gryphyn who was standing by the mail box. The vehicle continued across the road, hit the gutter on the other side and rolled forward down the hill with both Harley and Ethan still inside. Harley then climbed into the front seat and stopped the vehicle by applying the foot brake.

Police investigations immediately following the accident indicated a fault in the vehicle’s gear shift assembly as being the likely cause. Evidence was given

at the Inquest about the operation of the gear shift assembly in the vehicle and its relation to this tragic incident.

5. Gear Selector Assembly

(a) Quiet Cap

Following the incident, the Brasher's vehicle was taken to the Newtown Towing yard and inspected by Mr McDonald, the police mechanic. In his first report dated 5 September 2007, Mr McDonald states with regard to the gear selector –

“This vehicle was fitted with both an electric and mechanical device to prevent the gear selector from being accidentally moved from the park (P) position. As a result of my testing and inspection I found that both of these fail safe devices were not operating satisfactorily and the gear lever could be pulled from the park (P) position with little effort. I noticed that the electric solenoid lock out was inoperative and the manual lock out button was not operating correctly due to possible wear in the gear shifter and button assembly”.

In his evidence at the Inquest, Mr McDonald stated that when he tested the vehicle, he was able to move the T-bar gear shift lever easily and select any gear he wanted without having to depress the detent lock button located on the lever. He said that he could feel the lever “going through the gears”.

Mr McDonald conceded that when he removed the gear selector assembly from the vehicle on his second inspection and tested it on the bench, he could no longer move the T-bar gear shift lever without depressing the detent lock button. He agreed that, in normal operation, the button must be depressed to move the lever from park into reverse, with no depression required for the lever to be moved into neutral, and several of the other options. A diagram of the shift positions and when the button needed to be depressed to access those positions was placed into evidence, and was accepted as being an accurate representation of when the button was required to be depressed when operating the gear shift lever in a properly operating vehicle.

Mr McDonald was unable to explain why, once the assembly had been removed from the vehicle, he was unable to move the gear shift lever freely as had been the case on first inspection. He did, however, agree that the removal of the assembly from the vehicle may have remedied the operation of the button.

It was suggested at one stage that Mr McDonald had been mistaken in stating that he was able to move the gear shift lever freely through the gears on his first inspection. However, this was demonstrated to Senior Constable Harm (as he then was) at the first inspection and to Mr Brasher at the beginning of the second inspection, before the assembly was removed from the vehicle. They both gave evidence of this at the inquest.

Indeed, Dr Gilmore, an expert who gave engineering evidence with regard to the assembly, stated that Mr McDonald's evidence that he was able to move

the gear shift lever freely through the gears should be accepted as it was contemporaneous and was the best evidence. He could only speculate that the reason this had changed once the assembly was removed from the vehicle was because of some debris in the assembly or a possible bend in the gear shift lever itself, which was remedied when the assembly was removed.

In his second report, Mr McDonald found what he referred to as the "inner detent guide insert" (identified and referred to hereafter as the "quiet cap") was deformed adjacent to the Park 'P' position, preventing the detent plate from fully seating in the Park 'P' position. He found that this was the sole component to be at fault.

Mr McDonald agreed that the quiet caps for each of the other gears, apart from Park "P", were not damaged and he could not explain why the shift pawl did not fall into place when he moved the T-bar gear shift from Park "P".

The gear shift assembly was provided to the Ford Motor Company of Australia for inspection and report. Mr Peter Mason, a Customer Liaison Manager with the Ford Motor Company of Australia provided a comprehensive report and gave evidence at the inquest. Mr Mason is a qualified engineer and has been employed as an engineer in the automotive industry since 1988.

In his report, Mr Mason agreed that the quiet cap in the gear assembly was damaged. He was unable to say how this had occurred, but he stated that it was not caused by a design fault. Also, in his report and in evidence at the Inquest, Dr Gilmore stated that it could have been damaged during assembly at the factory and could most likely be attributable to a "production" or "assembly fault rather than a design fault".

When Mr Mason examined the gear shift assembly, he was unable to replicate the situation found by Mr McDonald when he was able to move the T-bar gear shift to any position without depressing the release button.

Indeed, the shift pawl was noted by Mr McDonald (on his second inspection after the assembly had been removed from the vehicle), Mr Mason on his inspection and Dr Gilmore on his inspection that the shift pawl was seated half way into the Park "P" position and would seat fully into the other gear positions when the T-bar gear shift was operated normally. It was agreed by all that even if the shift pawl was only partially seated in the Park "P" position, then it would not allow the T-bar gear shift lever to be shifted as occurred on the occasion of Mr McDonald's first inspection.

It therefore follows that something other than the damaged quiet cap must have been preventing the shift pawl from dropping into place.

Unfortunately, there is no further evidence to indicate what prevented the shift pawl from dropping into place. It was speculated that the T-bar gear shift lever was bent and that this was remedied to an extent once the assembly was removed from the vehicle.

I do note that Mr Brasher states he changed a tyre on the vehicle only two days before the incident. The vehicle at that stage was parked on the steep incline with the hand brake on and the T-bar gear shift lever in Park "P". I further note that when Mr Brasher parked the vehicle on the day of the incident, the vehicle did not move from the parked position immediately, but moved only after Ethan had climbed into the front seat and attempted to "drive" the vehicle.

Attached to Mr Mason's report is a printout of other Ford Explorers which had transmissions repaired under warranty. There were three of these on 1 May 2004, 5 July 2005 and 7 October 2005 relating to the 2002, 2004 and 2005 models. The technician comments are –

"Keys wont come out of ign. Found shift lock mechanism not releasing. Remove T bar quadrant & shift lock actuator. Test actuator OK. Inspect T/bar found plastic guide inside T/bar distorted. Remove T/bar assy & replace test"

"Check unable to remove ignition key from ignition switch. R/R/ centre console, R/Tbar assy found selector track shredded for Tbar, Repkl & tested by removing & testing key Operation, OK"

"Unable to remove key from ignition, remove ignition barrel & keys. Check operation, OK. Remove console & auto select lever. Found lever mechanism fouling causing switch to malfunction. Replace lever assy."

Information from Ford Australia is that there were 4,376 Ford Explorers sold in Australia and that only 4 (including the Brasher's vehicle) reported faults with the quiet cap.

(b) Actuator

The brake-shift interlock actuator is a black plastic box which contains a number of electronic and mechanical components. The actuator is designed to have two functions:

- (i) to allow the ignition key to be removed from the ignition switch only when the T-bar gear shift lever is in the Park "P" position.
- (ii) to prevent the gear shift lever from being removed from the Park "P" position unless the ignition key is in the ignition or run position and the brake pedal is also depressed.

During his first inspection, Mr McDonald noticed "that the electric solenoid lockout was inoperative and the manual lock out button was not operating correctly". On retesting during the second inspection he found that the T-bar gear shift lever could be removed from the park position "P" without the brake pedal being depressed and the ignition key in the "ON" and "OFF" positions. Because the actuator was not "activated", this permitted uninterrupted actuation of the gear shift lever. He was unaware of the other function of the actuator (as in (i) above).

When Mr Mason inspected the assembly, he found that the actuator circuit which controlled the removal of the key from the ignition had been blown and was rendered inoperative. This then meant that Mr Brasher could remove the key from the ignition even if the T-bar gear shift lever was not seated in the Park "P" position.

However, the operation of the actuator which prevents the gear shift lever from being removed from the Park "P" position unless the key is in the ignition or in the run position with the brake pedal depressed is mechanical.

Mr Mason describes this function in his report as follows:-

"The actuator achieves this function by locking the shift pawl into the Park "P" position detent. On the side of the actuator box is a pronged locking mechanism which holds the shift pawl when it drops into the Park position and locks it there. The pronged locking mechanism is locked and unlocked by an electric solenoid within the actuator. When the ignition is turned on and the brake pedal depressed an electrical signal is sent to the solenoid inside the actuator which will unlock the prong and release the shift pawl. Depressing the release button on the gear shift lever will then raise the shift pawl up from the Park "P" detent and enable the gear shift to be moved from the Park "P" position and into another gear."

It is this solenoid which Mr McDonald found to be "blown" on his inspection.

Mr Mason further states in his report that the result of the quiet cap being deformed is that the actuator is prevented from carrying out this function with the result that the gear shift lever can be shifted from Park "P" to Reverse with the key out of the ignition and without the foot brake needing to be depressed.

The damaged part of the actuator circuit (the electrical component) is connected to the locking solenoid within the steering column of the vehicle. In January 2005, Mr Brasher found that he was unable to remove the key from the ignition in the vehicle. A repair was undertaken under warranty by Southern Cross Ford on 7 January 2005. The repair involved the replacement of the steering column due to an unspecified "internal fault". The replacement of the steering column resolved the fault and enabled the key to be removed from the ignition. The repairer did not investigate any other possible electrical fault in the actuator which had the same effect.

In his report, Mr Mason states that whatever caused the solenoid in the steering column to fail may have also caused the damage to the actuator circuit as the two are connected.

Mr Mason further agreed that once the fault had been corrected by replacing the steering column, then the repairer would not search any further for further faults.

Mr Mason stated in answer to a question put to him by Mr Brasher at the Inquest, that more than 10 but less than 100 other vehicles had been repaired by Ford repairers following complaints that the ignition key could be removed without placing the gear shift lever into Park "P". This was found to be because of actuator failure as distinct from failure of the gear selector assembly.

I find that the fact that Ethan (a 5 year old boy) was able to knock, jar or shift the T-bar gear shift lever out of the Park position, was as a result of the failure of the mechanical aspect of the actuator.

6. Hand Brake

Mr & Mrs Brasher took the vehicle to Safe T Brakes on 13 August 2007 some 4 days before the incident occurred.

They had booked the vehicle in to have the front brakes fixed on 10 August 2007, but this was unable to be done due to the wrong parts having been ordered. They took the vehicle back on the 13 August 2007 and Mr Luker, a mechanic employed by Safe T Brakes, undertook the work.

Mr Luker also inspected the rear brakes "through the rims of the wheels" and reported that the brake pads needed replacing. He also noted that the hand brake needed "addressing straight away". In his evidence at the Inquest, Mr Luker stated that he could not have addressed the problem with the hand brake without removing the rear wheels of the vehicle as well as the callipers and the rotors and inspecting the pads inside the hand brake drum. He did concede that the hand brake cable **could** be adjusted without removing the wheels and calipers, but that he would not do this as it was not company policy and to do the job thoroughly required a checking of the hand brake brake pads located within the drum.

This evidence was confirmed by Mr Austin, the mechanic who repaired the handbrake and rear brakes for the Brashers after the incident.

Mr Luker stated that he told Mr Sperling (his manager) that the hand brake needed adjusting. The required work would take about ½ hour to 1 hour. It was his understanding that this work would be undertaken at the same time as the replacement of the rear brake pads, as this required the same work, ie removing the wheels and calipers and machining the rotors.

When asked in cross examination at the Inquest, Mr Sperling stated that he would have done an adjustment to the hand brake if it was urgent. He stated that he told the Brashers that this should be done as soon as possible. He said that the Brashers required the vehicle to pick the children up from school, and therefore there was no time in which to do the required work. In any event, he said it was more efficient to undertake this work at the same time as replacing the rear brake pads. He did acknowledge that Mr Brasher had asked that the hand brake be adjusted.

Mr Sperling did not make an appointment for the Brashers to bring the vehicle back in for this work, simply leaving it to them to make the arrangements when they had time.

Both Mr and Mrs Brasher stated that they did not know of the extent of the failure of the hand brake, only noticing that there was a “noise” which they thought may have been from a loose hand brake cable. In their interviews with the investigating police officer, they separately stated that they were not told by Mr Sperling of the urgent nature of the work that needed to be done on the hand brake. Mrs Brasher stated that Mr Sperling told her that “the hand brake should be better” after the front brakes were fixed.

In his interview, Mr Brasher stated that Safe T Brakes said they expected the hand brake “to improve even more when they did the back ones (brake pads)”. He also stated and reiterated in evidence given to the Inquest that Mr Sperling told him “it’s (the hand brake) better”. This is what is contained in the transcript of the interview, even though the hand brake and front and rear brakes are separate systems.

Mr McDonald found the “park brake to be operating however, it was grossly inefficient” being unable to hold the vehicle stationary. He found that he could easily move the vehicle both backward and forward on level ground.

7. Findings

In accordance with the *Coroner’s Act 2003*, I find

- (a) The identity of the deceased person is Gryphyn David Brasher
- (b) Gryphyn died from hypovolaemic shock due to massive blood loss from a ruptured right lung as a result of trauma caused by being struck by a motor vehicle. He also suffered a ruptured liver and spleen
- (c) Gryphyn died on 17 August 2007.
- (d) Gryphyn died at the Toowoomba Base Hospital located in Pechey Street, Toowoomba
- (e) Gryphyn’s death was caused when his father’s motor vehicle ran out of control backwards down a steep driveway, striking him. This was as a result of a number of contributing factors being -
 - (i) Failure of the vehicle’s actuator mechanically which is linked to the operation of the shift pawl. This allowed the T-bar gear shift lever to be able to be moved from the Park “P” position without depressing the release button on the side of the lever.
 - (ii) Failure of the electrical circuit in the vehicle’s actuator which, if operational, would have provided warning to the Brashers of a problem within the operation of the vehicle.
 - (iii) Poor condition of the vehicle’s hand brake.
 - (iv) Steep driveway.

On inspection of the gear shift assembly, it was found that the quiet cap was deformed. However, given that the deformity did not prevent the shift pawl from seating altogether into the detent, I am unable to find that this deformed quiet cap contributed to the accident.

In the conclusion to his report, Dr Gilmore states that in his opinion, the incident did not occur as a direct result of a “design defect” in the gear shift assembly.

I find that if the gear shift assembly had performed as designed, even though the hand brake was insufficient, the vehicle would not have moved from the Park position. I also find that if the hand brake had been in working order, then the accident more likely than not would not have occurred, or unfolded as it did.

8. Recommendations

(a) That Ford Australia cause Australia-wide advertisements to be published informing all owners of UT Ford Explorer 4WDs with automatic transmissions of a potential fault in the brake-shift interlock actuator of the vehicle and recommending that the vehicle be mechanically inspected by an accredited Ford repairer with a view to identifying any defects and have these remedied at Ford’s expense.

(b) That mechanical repairers of vehicles give written notification to owners of vehicles of any faults (which are potentially dangerous to the operation of the vehicle) found during mechanical services and repairs, such written notification to be acknowledged in writing by vehicle owners on collection of the vehicle.

I would like to commend the actions of Harley Brasher in his quick thinking in bringing the vehicle to a halt, thus saving himself, his brother Ethan and perhaps other road users from injury.

Finally, I would like to thank my clerk Dan Darlington, Sergeant Robinson and Constable Dearling for their assistance at this inquest. I also take this opportunity of congratulating all the parties and their legal advisers for their contribution to this inquest.

The Inquest is closed.

Kay Ryan
Coroner
Toowoomba
14 May 2009