

*Castine & Anor v Smith & Amiet Engineering Pty Ltd & Anor*  
[2008] NTSC 16

PARTIES: CASTINE, Christine Edith

And:

BUDD, Raymond Charles

v

SMITH, Michael John, AMIET, Michael  
Leonard and SMITH & AMIET  
ENGINEERING PTY LTD  
Trading as "S.A.E. Aircraft  
Maintenance"

And:

CALAIR CORPORATION LIMITED  
(ACN 010 782 831)

TITLE OF COURT: SUPREME COURT OF THE  
NORTHERN TERRITORY

JURISDICTION: SUPREME COURT OF THE  
NORTHERN TERRITORY  
EXERCISING TERRITORY  
JURISDICTION

FILE NO: 34 of 2001 (20101965)

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JUDGMENT OF: RILEY J

## **CATCHWORDS:**

### **NEGLIGENCE – DAMAGES**

Negligence – duty of care – causation – prudent licensed aircraft maintenance engineer – Compensation (Fatal Injuries) Act – assessment of damages – liability in respect of the death of a person – loss of economic support – consortium - solatium

*Compensation (Fatal Injuries) Act*

*Australian Telecommunications Commission v Parsons* (1985) 59 ALR 535;  
*Cook v Cavenagh* (1981) 10 NTR 35;  
*De Sales v Ingrilli* (2002) 212 CLR 338;  
*Jones v Bleakley* (1981) 12 NTR 1  
*Martin v Moore trading as Surefix Alumium* [1999] NTSC 34;  
*Parsons v Australian Telecommunications Commission and Others* (1983) 28 NTR 19  
*Reghan v Leeuwin Ocean Adventure Foundation Ltd and Another* [2006] NTSC 4  
*Rozario v Fernandez* (1977) 16 ALR 445

## **REPRESENTATION:**

### *Counsel:*

First Plaintiff:	D Alderman
Second Plaintiff	M Maurice QC with B O’Loughlin
First Defendant:	R Williams QC with C Ford

### *Solicitors:*

First Plaintiff:	Hunt & Hunt
Second Plaintiff:	Peter Garton
First Defendant:	McQueens

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IN THE SUPREME COURT  
OF THE NORTHERN TERRITORY  
OF AUSTRALIA  
AT DARWIN

*Castine & Anor v Smith & Amiet Engineering Pty Ltd & Anor*  
[2008] NTSC 16  
No 34 of 2001 (20101965)

BETWEEN:

**CHRISTINE EDITH CASTINE**  
First Plaintiff

And:

**RAYMOND CHARLES BUDD**  
Second Plaintiff

AND:

**MICHAEL JOHN SMITH, MICHAEL  
LEONARD AMIET and SMITH &  
AMIET ENGINEERING PTY LTD  
trading as "S.A.E. Aircraft  
Maintenance"**  
First Defendant

And:

**CALAIR CORPORATION LIMITED**  
(ACN 010 782 831)  
Second Defendant

**CORAM: RILEY J**

**REASONS FOR JUDGMENT**

(Delivered 8 April 2008)

- [1] On 8 February 1998 an ultralight aircraft piloted by the second plaintiff, Raymond Charles Budd, crashed into the Elizabeth River south of Darwin

causing the death of his passenger, Ian Castine, and serious injuries to Mr Budd. As will be seen the presence of wood decay or rot in the left-hand wing was a cause of the crash. These proceedings are brought by Mr Budd and by the first plaintiff, who is the widow of Mr Castine, in her own right and as the representative of other family members.

- [2] At the relevant time the first defendant (now acknowledged to be correctly described as Michael John Smith and Michael Leonard Amiet trading as SAE Aircraft Maintenance) carried on the business of licensed aircraft maintenance engineers at the MKT Airfield south of Darwin. The plaintiffs commenced the proceedings alleging the crash was caused or contributed to by the negligence of the first defendant. Proceedings were also commenced against the second defendant alleging it was the manufacturer of the aircraft and that the aircraft suffered from design defects, however the company was not served and no orders are now sought against it.

### **The aircraft**

- [3] Mr Budd had a long standing interest in aircraft. He commenced flying gliders and moved on to obtain his restricted pilot's licence in 1984 or 1985. In 1996 he obtained his pilot's certificate with the Australian Ultralight Federation and in the same year he purchased a CA21 Skyfox aircraft which he kept at the MKT Airfield.

[4] Mr Budd described the aircraft as being in "very good" condition. The focus of the evidence was upon the wings of the aircraft which consisted of plywood ribs covered by tautly stretched fabric. The fabric surfaces of the wings were painted and the paint showed signs of crazing, but Mr Budd said it was no worse than he had seen on many planes. The over-fuselage wings were each supported by two aluminium spars extending from the root to the tip of the wing, perpendicular to the fuselage and slightly upward to achieve a dihedral effect. The spars were supported by struts extending out from the lower sides of the fuselage to attachment points along the wing spars. Hanging from the trailing edge of each wing were ailerons. Each aileron consisted of four discontinuous, foam filled, aluminium sections joined together by a thin aluminium tube known as the torque tube. The ailerons were attached to the trailing edge of each wing by metal fittings which were clamped by brackets to extensions of five of the wing ribs. The extensions were variously described in the proceedings but will be referred to as hanger extensions or hangers. The ribs, of which they were an extension, are described as hanger ribs. The brackets consisted of two, thin metal plates which were clamped to the hangers, one on each side, by passing two bolts through the plates and the hanger, and then fastening the bolts with self-locking nuts.

[5] Mr Budd said that he maintained the aircraft and regularly inspected it for defects in accordance with the training provided to him by his pilot training instructors. At the time of the accident he had about 60 to 70

flying hours in the aircraft. He used it for recreational purposes and he often flew with Mr Castine, who had also been a pilot, although Mr Castine's licence had lapsed.

### **The repair of the aircraft**

- [6] In late December 1996 Mr Budd left his aircraft with the first defendant to enable some repairs to be effected. Mr Budd described a problem with a magneto which he felt was not "cutting in" and he also requested that the compression of the motor be tested. In cross-examination, and for the first time, Mr Budd said that he "thought" he also asked Mr Smith "if he could check everything". He later gave evidence that he thought he "might have said just check it over generally at particular times if it was available" but went on to agree that he did not ever take the aircraft back to the first defendant to be checked.
- [7] The suggestion contained in the statement of claim that Mr Budd sought advice from Mr Smith at the time he purchased the aircraft is not supported by any evidence and was not pursued in the course of proceedings.
- [8] The aircraft, which had previously been parked in the open for a time and then under some shade cloth, was moved into the hangar of the first defendant. Whilst in the hangar it seems a door of the hangar came into contact with and damaged the outboard aileron of the left wing of the aircraft. Mr Budd described the damage as the aileron having "broken the

two outer ribs" meaning the extensions of the ribs (or hangers) that connected the aileron to the trailing edge of the wing. He saw that the end of the aileron was hanging down. Whilst it is not significant for present purposes other witnesses said that only one aileron hanger was damaged although two were replaced in the repair process. In addition Mr Budd said there was an L shaped tear to the fabric on the top of the wing which was much bigger than a man's fist. The first defendant agreed to repair the damage and, over a long period of time, did so.

[9] The plaintiffs claim that in the process of repairing the damage the first defendant removed the left aileron and parts of the fabric covering the left wing. The defendant repaired two of the wing ribs and associated aileron hangers. New fasteners were installed in relation to each of the remaining left wing aileron hangers. The plaintiffs claim that, at the time of repair, there were observable signs of moisture penetration in the ribs and aileron attachment points and they were affected by wood rot, a condition which, it was said, was or should have been observed by the first defendant.

[10] Each of the licensed aircraft maintenance engineers involved in the repair of the aircraft gave evidence. I found those persons, being Mr Smith, Mr Amiet and Mr Belfield, to be straightforward in giving their evidence. They each had a relatively clear recollection of most of the relevant events when compared with the recollection of Mr Budd. There were things that each man could not remember because of the effluxion of time and that was made clear in the course of the evidence. Their evidence

was generally consistent and there was no suggestion that they had compared notes or discussed their evidence. None of the witnesses was seriously challenged in the course of cross-examination. Mr Belfield, whose evidence is central to some of the issues, impressed me as being a careful, reliable and candid witness.

[11] On the other hand, whilst I accept that Mr Budd was doing his best to recall events, his memory was vague and imprecise. He showed signs of confusion of thought. There was an element of reconstruction in what he had to say and his memory was demonstrated to be unreliable, for example, as to his record keeping. In a medical report dated in 2001 Dr Flavell, the Director of Rehabilitation Services at Royal Darwin Hospital, reported that Mr Budd suffered significant psychological issues following the plane crash noting that "not unexpectedly this has taken a substantial period of time for him to come to terms with". It is likely that his memory has been affected by the trauma of the accident, the tragic death of his friend and the subsequent dealing with his own very serious injuries over a long period of time. In any event I accept the evidence of Mr Smith, Mr Amiet and Mr Belfield where their evidence differs from the evidence of Mr Budd.

[12] Mr Budd had a casual attitude to the maintenance of the aircraft. He gave evidence that, as the owner, he was responsible for its maintenance. His understanding in this regard reflected the evidence of Mr Dafydd Llewellyn, an aeronautical engineer, who outlined the regulatory regime

for such aircraft in Australia. The submission made on behalf of Mr Budd that he did not have a detailed understanding of wings, their permeability or the adequacy of their drainage or, indeed, other aspects of maintenance of the aircraft, is not to the point. He was responsible for the maintenance and where he lacked knowledge it was incumbent upon him to either acquire the knowledge or engage a suitably qualified person to exercise the responsibility. There is no suggestion that he engaged the first defendant or, indeed, anyone for these purposes.

[13] His casual approach was revealed in the course of cross-examination. I provide some examples. Mr Budd knew the aircraft had a flight manual but he was unsure whether he had received it. He gave evidence that he kept a log book of his flights but when tested it seems a number of flights had not been entered into the records. He kept some records on loose sheets of paper. He was aware of the need to keep a written record of repairs and maintenance to the aircraft but he did not always do so. In his evidence he demonstrated a poor understanding of his responsibilities in relation to the care and maintenance of the aircraft. He showed little appreciation of appropriate maintenance standards and procedures. His evidence in this regard was both vague and unsatisfactory. I do not accept that he carried out the maintenance and inspections of the aircraft in the diligent manner suggested in his evidence.

[14] Mr Smith gave evidence that he was a licensed aircraft maintenance engineer and, at the relevant time, was in business with Mr Amiet. They

operated from the MKT airfield. In mid-December 1996 Mr Budd asked him to carry out work on the aircraft and Mr Smith agreed to do so. The arrangement was that in exchange for Mr Smith doing the work Mr Budd would take Mr Smith fishing.

[15] The work that was performed involved correcting a problem with low compression. The aircraft was placed in the hangar of the defendant. The initial work was attended to by Mr Smith. At about the same time a secondary problem to do with the ignition system was discovered. That was attended to by Mr Nick Belfield who had the relevant expertise and qualifications. According to Mr Smith, Mr Budd did not ask Mr Smith to carry out any other work on the aircraft. Mr Amiet gave evidence that, after the repairs were effected, he told Mr Budd that he was unhappy with the state of the aircraft and Mr Budd responded that he was “doing the aircraft up” and did not seek any input from Mr Amiet. I do not accept the faintly made claim of Mr Budd that he asked the defendant to “check everything”. His instructions were limited to authorising the initial work and the repairs discussed below.

[16] In January 1997 Mr Smith became aware of damage having been caused to the aircraft whilst it was in the defendant’s hangar. Mr Smith told Mr Budd of the damage and undertook to effect the repairs. In his evidence he said that he had been called to the aircraft and saw that it had a broken left hand outboard aileron hanger. The end of the aileron was drooping about 5° to 10°. Mr Belfield, who subsequently carried out the

repairs, said he saw the outer aileron hangar was broken and that the aileron was hanging down to an angle of around 15°. Mr Smith recalled that there was a small hole in the top of the wing but, at the time of giving evidence, was unable to recall the location of the hole. Mr Belfield described the hole as being about the size of a \$.50 piece and situated forward of the number four rib. I accept the description of the hole provided by Mr Belfield and that he repaired it by placing a patch over it.

[17] At the time of discovering the damage Mr Smith inspected the aircraft. Mr Smith said that he had a clear recollection of carrying out the inspection. It was, for him, an unusual experience because the wing was constructed of wood and fabric and he was experienced with aluminium. He said that Mr Amiet was present for part of the inspection and Mr Belfield was also present for part of the inspection. They were not necessarily in company but Mr Smith said "all three of us looked at it". Mr Amiet confirmed that he had looked at the broken aileron hanger and he "would have looked at them all" although he does not now specifically recall inspecting the others.

[18] Of importance for present purposes was the evidence of Mr Smith that he carried out a detailed inspection of the ailerons and the aileron hangers. It was a visual inspection and involved each of the aileron hangers on the left hand side. He was asked how the inspection was carried out and he responded "by pushing, prodding, poking, looking". He said he "wiggled them, put pressure on them". He observed that the number five hanger

was broken. There was no damage to any of the other hangers. His inspection of each of the unbroken hangers gave rise to no concern as to their integrity. Notwithstanding his observations as to the remaining hangers it was determined by himself, Mr Belfield and Mr Amiet to replace the number four hanger as a matter of caution. Mr Amiet gave evidence to similar effect. There was nothing to suggest that any of the remaining hangers were in any way compromised and, in particular, there was nothing that gave rise to a suggestion of rot in any timber associated with the wing.

[19] It was submitted on behalf of Mr Budd that the evidence of Mr Smith in relation to the inspection was improbable and it was pointed out that the detailed inspection was not referred to in the police statement that Mr Smith made in 1998. Counsel for Mr Budd submitted that "obviously, Smith would have needed to inspect the immediately adjoining hanger, and, perhaps, the one after that, but once it was seen they were completely undamaged, close and meticulous inspection of those further inboard would have been unnecessary". To the contrary, the inspection to which Mr Smith referred was one of a kind that would be expected of a prudent licensed aircraft maintenance engineer. Had such an inspection not been performed he could legitimately be said to have been less than diligent in the circumstances. Further, the statement to which reference was made was a two-page statutory declaration made to a police officer and did not venture into detail on any issue. However, it did refer baldly to the fact

that the work was inspected by Mr Smith. It seems he was not called upon to elaborate as to the nature of his inspection by the interviewing officer. I accept his evidence in this regard.

[20] Mr Belfield described the repair process he had carried out. The repair kit was obtained by Mr Budd and it came with the manufacturer's instructions which Mr Belfield read and followed. He first removed the aileron with the assistance of Mr Amiet and Mr Smith. A few days later he commenced the repair work which he carried out over a couple of weekends. He firstly worked on the outer rib and then on the fourth rib. He gained access to the ribs by cutting the fabric on the top of the wing to the extent of about six inches and opening it up. He carefully removed the cap strip which he described as being in a good condition. Thereafter he removed the part of the rib which included the broken hanger and replaced it with a new piece. It was painstaking and precise work. The replacement piece was glued in place and the cap strip replaced. The exercise was then repeated for the fourth rib.

[21] Whilst Mr Belfield was working on each rib he was able to look forward of the section that he was repairing. He did not notice anything about the condition of the rib forward of the repair that caused him any concern. After the crash the repaired rib (forward of the repair) was inspected by Dr Johnson of the CSIRO and was also the subject of report by the Civil Aviation Safety Authority. Consistent with the evidence of Mr Belfield both Dr Johnson and the report confirmed that there was no sign of any

surface damage to this rib section. This is direct objective evidence confirmatory of the evidence of Mr Belfield.

[22] Mr Smith understood that the repairs were effected by opening the fabric on the underside of the wing. I find he is mistaken in this regard and I prefer the evidence of Mr Belfield who performed the work.

[23] When the repairs were completed the aileron was refitted to the aircraft. Mr Belfield bolted it into place and he believes he started with the inboard hanger, then a centre hanger and then an outer hanger. This approach was adopted "to keep it all even". He used a spanner and a "ratchet set up with a little socket" and the appropriate pressure was determined "by feel, through experience". He noticed nothing unusual in this process.

[24] The repairs were effected by Mr Belfield following which Mr Smith and Mr Amiet carried out what was described as a "duplicate inspection" after the aileron had been refitted. A duplicate inspection is an inspection that is usually carried out after work has been performed on the flight controls of an aircraft. Mr Smith said he checked the work and also what he described as "the hardware" which was "the safety of the nuts and bolts, making sure split pins etc are all fitted correctly, everything in its right place". He was satisfied that all was in order. Consistent with this evidence Mr Smith made the statutory declaration shortly after the

accident in which he confirmed that, following the repairs to the wing, he had "inspected it and would rate it as in an excellent condition".

[25] Mr Belfield was asked about the general condition of the aircraft and he said "a stringer looked a bit swollen" and the fabric was "getting a bit tatty, it needed some attention". Notwithstanding those observations, following the repair, Mr Belfield was happy to take the aircraft for a test flight with Mr Budd. Mr Amiet, on the other hand, said that he told Mr Budd that he was not happy with the state of the aircraft and would not fly in it. He told him there was paint missing from the wings, there were rotten wooden stringers in the tail and some of the steel beams in the tail were rusty. Mr Budd responded by saying "he was going to be doing the aeroplane up and he didn't need my input into it".

[26] The aircraft was returned to Mr Budd in June 1997. At that time he took it for a test flight with Mr Belfield, the man who physically effected the repairs. Mr Smith said that at about this time he had a discussion with Mr Budd and informed him that the aircraft was in poor condition. He showed him the damaged stringers, which are timber stringers used to form the shape of the aircraft. Mr Budd said to Mr Smith that he was making arrangements to have repairs carried out to the stringers.

Mr Smith said that he then informed Mr Budd that the aircraft "needed to be stored carefully". In light of the evidence of the three licensed aircraft maintenance engineers, and particularly that of Mr Smith and Mr Amiet, I

do not accept the evidence of Mr Budd that the aircraft was in a "very good" condition.

[27] Thereafter Mr Budd stored the aircraft under shade cloth until the date of the accident. The storage conditions were less than ideal. It was an open sided structure with a non-waterproof shade cloth roof. The weather conditions during the period ranged from dry season weather through to the heat, high humidity and rainfall of the months leading into the early tropical wet season. In the intervening period, between and the repair and the accident, the aircraft was flown on a number of occasions without mishap and without Mr Budd observing any signs of deterioration. In particular, Mr Budd was not aware of the presence of wood rot in the wings or the aileron hangers.

[28] The plaintiffs suggest that during the period following the return of the aircraft the aileron hangers on the left wing became progressively weaker as a consequence of the deterioration of the wood. Then, during the flight on 8 February 1998, the left aileron separated from the wing and the aircraft crashed into the Elizabeth River.

### **The crash**

[29] Mr Budd described the circumstances of the crash in his evidence. Prior to taking off, the aircraft had been hand washed by himself and Mr Castine and then the usual safety checks had been undertaken. In the

inspection process he checked all the elevators and the ailerons and he cleaned them. He did not see anything to cause him concern.

[30] Mr Budd and Mr Castine then took off in the aircraft and travelled for a short time before doing two circuits over the house of a friend. Mr Budd said he flew the aircraft at about 450 feet above the ground and denied that he had flown at or near tree top level. He then turned slowly out of a turn, described by others as "reversal of the direction of the turn", gradually increasing height to 500 feet. He described the turns as being turns "that are commonly done" and which were within the operating limits of the aircraft. He was intending to return to the airstrip. The aircraft was travelling "straight and level" at approximately 60 knots when it suddenly veered to the right. Mr Castine and Mr Budd noticed fuel or water coming from the starboard wing onto the windscreen. Mr Budd then heard a loud "bang" and lost control of the aircraft. It spiralled down in an anticlockwise movement and crashed into some rocks in the river. Mr Budd suffered severe injuries to his legs. Notwithstanding his injuries he bravely endeavoured to rescue Mr Castine from the water but was unsuccessful. Mr Budd was eventually rescued by a helicopter and transferred to Royal Darwin Hospital.

[31] There were two independent eyewitnesses to the accident. They were both on the ground watching the aircraft prior to it crashing. Judith Rooney described the aircraft as flying so low that she instinctively ducked down. Apart from the low-flying she said the aircraft appeared to

be "operating correctly" and the engine sounded as if it was running smoothly. It did two anticlockwise circuits over her property and was heading away. She looked away from the aircraft and at that time the engine stopped. She said there was no noise of spluttering and it was as if the engine had been turned off. When she looked back she could not see the aircraft but heard the sound of it crashing.

[32] William Duminski was a neighbour of Ms Rooney and also saw the aircraft. He said it was flying low. He said he saw it make a "quite steep banking right turn" following which he saw two objects fall from the aircraft. He described one as white in colour and about 1.5 m long (presumably the piece of the aileron subsequently located) and the other was handkerchief size and "fluttered to the ground". This item has never satisfactorily been identified. He said that up until that time the aircraft seemed to be "flying normally but then (it) went almost nose down and crashed".

[33] The evidence of Ms Rooney and Mr Duminski was not challenged. Contrary to the evidence of Mr Budd they each said that the aircraft was flown at a very low altitude and I accept that to be so. However, there was nothing in the evidence to suggest that the pilot was operating the aircraft outside the permitted envelope. There was nothing to support the suggestion of one expert witness that it was flown in circumstances that created flight loads beyond its claimed design capability as a result of the aircraft recovering from an excessively steep left turn.

[34] Following the crash the aircraft remained immersed in the river for some time and was then recovered and removed to a yard at police headquarters in Darwin.

[35] Mr Budd suffered injuries to both legs. When he awoke in hospital both legs were in plaster above his knees. One of his arms was placed in plaster. He had a number of operations on each of his legs and eventually his right leg was amputated below the knee. Later a second amputation occurred when about 10 mm was removed from the same leg. The left leg was also seriously damaged and a recommendation made that it be amputated. However, further expert medical opinions were obtained and the leg has been retained. He spent 11 months in hospital.

### **The cause of the crash**

[36] The plaintiffs claim that the aircraft crashed when the left inboard aileron separated from the wing to which it was attached because of wood rot in the wing ribs and aileron hangers. The claim was that the inboard aileron hanger on the left hand side broke in flight.

[37] At the time of trial there was no complaint as to the quality of the repair work on the two outboard aileron hangers. However, it was submitted that, at the time of carrying out the repairs to the outboard aileron hangers, the first defendant should have observed signs of wood rot and either made the necessary repairs or, at least, drawn the problem to the attention of Mr Budd. It was contended that at that time the ribs and

attachment points had observable signs of moisture penetration and were affected by wood rot. In particular it was said that the two inboard hanger extensions on the left-hand side had visible rot in them at the time the outboard aileron was repaired by the first defendant and the rot was a cause of the accident.

[38] At an earlier time the plaintiffs had contended that the over tightening by the first defendant of the bolts holding the aileron hangers had contributed to the occurrence but that was not pressed at trial. Also abandoned was an allegation that the first defendant had failed to repair the aircraft properly.

[39] On behalf of Mr Budd it was submitted that it was not necessary to determine with precision the cause of the crash. It was contended on his behalf that, in order to establish their case, the plaintiffs had to prove that, at the time the left-hand aileron was refitted to the aircraft, rot was present in the inboard hanger extension or elsewhere within the left-hand wing. The plaintiffs then had to show that a careful and competent licensed aircraft maintenance engineer, when repairing and refitting the aileron, ought to have observed the rot and brought it to the attention of Mr Budd. The plaintiffs then had to prove that, but for the presence of rot in the ribs and hangers of the left-hand wing, the aileron would not have broken off in flight. Finally the plaintiffs had to establish that if Mr Budd had been aware of the presence of the rot on 8 February 1998 he would not have flown the aircraft.

[40] The plaintiffs submitted that, no matter what may have been the precise cause of the crash, the establishment of those matters is sufficient to establish the case on causation. It was submitted:

"Whilst it may not have been the rot in the left-hand inboard aileron hanger that brought the aircraft down, attack by the same or similar fungal spores in the plywood components of the same wing did. The onset and development of those other spores occurred in, and because of, the same internal wing environment as the ones that attacked the inboard hanger. The rot in the inboard hanger is not, therefore, a condition separate from and independent of the rot which occurred in the other hangers and ribs. Thus, once it is found that SAE should have detected rot in the inboard hanger, that the rot was still there on 8 February 1998, and that Budd would not have flown that day had he known about it, there is not only causation in fact but causation as a matter of commonsense as well."

[41] In their written submissions all parties accepted that wood decay or rot played a role in the aircraft failure. That is the effect of the evidence of the two aeronautical engineers called to give evidence, being Mr Whitney for the plaintiffs and Mr Llewelyn for the defendants. I accept that to be so. The aeronautical engineers were each highly qualified and were impressive witnesses each doing his best in circumstances where not all of the relevant evidence was available. There was a large measure of agreement between them. Differences centred upon the precise cause of the failure and the likely sequence of events in the moments preceding the crash. As it turns out it is unnecessary for me to resolve those differences for the purposes of these proceedings.

[42] The crash occurred on 8 February 1998 and thereafter parts of the aircraft were inspected by investigating officers and other experts who noticed the

presence of deterioration. Dr Johnson, an expert in bio deterioration of timber, timber durability and timber preservation, prepared a report dated May 1998 in which he noted that an area described by him as "LH aileron rib #1" showed an "intensely discoloured and softened zone" in the vicinity of the aileron hanger extension and there was a "dark coloured fungus" growing. There was also a limited fungal growth at the aileron hanger extension described as "left-hand aileron section 3, outboard attachment (LH aileron rib #4)". He noted that a section of the lower rib cap on the side of the aileron hanger extension was "severely white rotted to a depth of at least four veneers". Given that the rib cap consisted of 5 ply the extent of the degradation seen by Dr Johnson was substantial. I observe in passing that this rib cap was one of those handled by Mr Belfield in the repair process. I will mention this again shortly.

[43] Dr Romeyn, an Air Safety Investigator with the Bureau of Air Safety, also visually examined various parts of the aircraft in May 1998. He observed "signs of discoloration and deterioration" on the inboard rib extensions. He noted the outboard ribs, which had been replaced in the course of the repair, were in good condition. He also observed crushing on the innermost aileron hanger.

[44] From the unchallenged lay evidence as to the speed and manoeuvres of the aircraft on 8 February 1998 together with the evidence of the pilot, Mr Budd, it is apparent that the aircraft failed at a point comfortably within its safety margins as identified by the expert aeronautical engineer,

Mr Llewellyn. It is uncontested that the failure can only be explained by the presence of wood decay or rot in the left-hand wing.

[45] The central issues that then arise for determination are whether rot was present at the time of the repair and, if so, whether the defendant ought to have observed the presence of the rot and brought it to the attention of Mr Budd. It is acknowledged by the defendant that the relationship between the parties was such as to give rise to a duty on the part of the defendant to bring to the attention of the owner a defect of significance to the integrity of the aircraft revealed in the course of repair.

#### **The care of the aircraft prior to the crash**

[46] The aircraft was delivered to the defendant in December 1996. Prior to that time it had been stored in the open at the MKT airfield. The evidence was that it had been flown by Mr Budd on numerous occasions. Those flights included flights with his flying instructor Mr Ron Lawford. Mr Lawford, who was described as an experienced pilot who was “meticulous” about safety, gave evidence that between 8 September 1996 and 24 November 1996 he flew with Mr Budd on 11 occasions. His unchallenged evidence was that, in accordance with his standard practice, he carried out pre-flight inspections of the aircraft. He said that if the aircraft had been in a poor condition or if he had seen rot in any timbers he would not have flown in the aircraft. His last inspection was just three to four weeks before the aircraft was delivered to the defendants.

[47] Mr Budd gave evidence of his own pre-flight inspections during the same period and, indeed, up to the time of leaving the aircraft with the defendant. He also said he carried out routine maintenance including to the ailerons during that period. There is no evidence to suggest that any discernible wood rot was present in the aircraft prior to December 1996.

[48] The damage to the aircraft occurred in January 1997. The repairs were completed by mid-June 1997. The test flight following the completion of repairs took place on 15 June 1997.

[49] In the period from December 1996 through to mid-June 1997 the aircraft was in the possession of the defendant. It seems it was stored inside the first defendant's hangar at the MKT airfield although it is possible it may have been moved outside on occasion. The hangar had a wide opening at one end which was, at times, covered with shade cloth, and folding doors at the other. Those doors were often open. Although the hangar provided a substantial amount of protection the aircraft was not completely sheltered from the elements and was exposed to moisture and, possibly, some rain in stormy conditions. The conditions were far superior to leaving the aircraft in the open or under shade cloth but, nevertheless, not ideal.

[50] The evidence of those who worked on the aircraft being Mr Smith, Mr Amiet and Mr Belfield was that they saw no sign of wood rot on the aircraft. Of particular significance is the evidence of Mr Belfield, which I

accept, that he worked upon the rib caps of the fourth and fifth ribs. He removed those rib caps and then replaced them. He did not detect rot at the time he undertook that process including when he handled the rib caps. By the time of the inspection of Dr Johnson and Dr Romeyn subsequent to the crash it is clear there was decay present. If the evidence of Mr Belfield as to his observations of the rib capping is accepted, the decay must have developed some time after he carried out his repair work and before the time of the inspection by Dr Johnson and Dr Romeyn.

[51] From mid-June 1997 through to the date of the crash in February 1998, a period of approximately eight months, the aircraft was in the possession of Mr Budd and was stored either in the open or under shade cloth. During that period it was fully exposed to the weather save for the limited protection provided for a time by the shade cloth.

[52] Mr Budd gave evidence, consistent with the available records, that during the months from mid-June 1997 through to February 1998 the aircraft was flown on approximately ten occasions and for approximately 25 hours without mishap. He said that on each occasion he carried out pre-flight checks including visual inspections of the aileron and aileron hangers. He noticed no discoloration. He was familiar with the smell of wood rot and he did not notice any unusual smell. Further, during that period, Mr Budd said he carried out routine maintenance on the aircraft including attention to the ailerons. He did not detect wood rot in the process.

- [53] On 8 February 1998, before the commencement of the final flight, Mr Budd said that he washed the aircraft and checked the elevators and the ailerons. The aircraft was then sponged to dry it. This was a ‘hands on’ exercise. He said he could remember doing a checklist after completing the inspection but he does not know where the inspection sheet is now located. He did not see any relevant discoloration or sign of wood rot. There is no suggestion that the deceased, who assisted Mr Budd, raised any issue of concern.
- [54] The first evidence of there being any sign of wood rot came as a result of the inspection of the remains of the aircraft after the crash.

### **The development of wood rot**

- [55] Expert evidence was led as to the nature of wood rot and its likely development. It seems that the original ribs and hangers on this particular aircraft were made of Finnish Birch whilst the repairs that were effected to the fourth and fifth ribs involved Hoop Pine. Finnish Birch is highly susceptible to decay and is of the lowest durability class with little or no resistance to decay fungi.
- [56] The consultant timber pathologist, Mr Powell, gave evidence that, of the many environmental factors that affect fungal growth the most important are temperature and the availability of moisture and oxygen. Under ideal conditions wood decay will progress rapidly. In his report he set out the rainfall, temperatures and humidity for the period from June 1997 through

to January 1998. He described the conditions from October 1997 through to the date of the crash as being "close to ideal for fungal growth". He expressed the opinion that 15 weeks was ample time for wood decay to progress to the extent observed and recorded by Dr Johnson. Dr Johnson himself noted that the time for decay would be measured "in weeks, not days". In addition, deterioration was likely to have continued past the date of the crash through to the date of the inspection by Dr Johnson.

[57] Mr Powell advised that such decay initially affects the toughness or the ability of wood to withstand impacts, followed by reductions in bending strength and eventually all strength properties are seriously reduced. By the time weight losses resulting from decay reached 10% in most cases strength losses exceed 50%. Dr Johnson expressed a similar view noting that "mass losses of less than 10% result in dramatic strength reduction of some parameters". Mr Whitney agreed that, where rot is capable of being detected visually, loss of strength "would have certainly been significant".

[58] Mr Powell observed that with weight losses of up to 10% (with consequent significant strength losses) incipient wood decay is detectable only microscopically. That being the case, if one or more of the aileron extensions was rotten at the time of the repair to the extent of being able to be detected without the aid of microscopy, it would have suffered extensive strength loss. Mr Powell expressed the view that in the repair process the additional stress of the loose aileron and the process of removal and reinstatement would have been likely to have broken any

detectably affected rib extensions that may have been present.

Mr Whitney disagreed with this view suggesting that whilst the aircraft was sitting static on the ground the loads put on the hangers would be quite small. Obviously much would depend upon the methods used in the course of the repair and the loads placed on the rib extensions and hangers in that process. As it was, no such breakage occurred. On the other hand, if there was decay of an early incipient stage present at the time of repair with less strength loss, then the decay would have been undetectable to all but an experienced wood mycologist using a quality microscope. It follows it would have been undetectable to the eyes of the repairers. There would be no observable sign to alert them to the need for a closer physical or microscopic examination.

[59] Wet wood is inherently weaker than the same piece of wood when dry, even in the absence of any fungal attack.

[60] The defendant submits that the evidence that there was no decay or, at least, no discernible decay at the time of the repairs is compelling. In summary form the evidence shows:

- a) prior to the delivery of the aircraft to the defendant in December 1996 the independent inspections carried out by Mr Budd and, more significantly, Mr Lawford detected no sign of deterioration;
- b) the routine maintenance work carried out by Mr Budd, including work to the ailerons, revealed no sign of deterioration;

- c) the repair process carried out by Mr Belfield revealed no sign of deterioration and there was no damage to other hangers in that process as would be expected if the decay was capable of being detected without the use of a quality microscope;
- d) the fact that Mr Belfield worked within the wing and that he carefully removed and reinstated the rib capping provided him with ample opportunity to observe any deterioration that may have been evident. The fact that he saw no deterioration and yet deterioration was subsequently found by Dr Johnson suggests that the deterioration occurred after the time of the repairs. Importantly, his observation that there was no sign of deterioration forward of the repair was confirmed by independent inspection after the crash;
- e) at the time of the repairs inspections were also carried out by Mr Amiet and Mr Smith and those carried out by Mr Smith included physically handling the ailerons and the aileron hangers. Neither Mr Smith nor Mr Amiet saw signs of deterioration;
- f) during the period the aircraft was with the defendant it was in significantly superior storage conditions over those which subsequently applied when the aircraft was returned to Mr Budd;
- g) after the return of the aircraft to Mr Budd it was flown on approximately 10 occasions over a period of nearly eight months without mishap;

- h) during those months Mr Budd carried out his own inspections of the aircraft and continued maintenance work on the aircraft without detecting any signs of deterioration;
- i) on the morning of the final flight Mr Budd washed the aircraft and noticed no signs of deterioration. At the same time he carried out his usual inspection including checking the elevators and the ailerons and was not alerted to any deterioration;
- j) Mr Castine was present throughout the pre-flight inspection and, apparently, noticed nothing untoward; and
- k) the expert evidence reveals that decay could occur in a relatively short period of time and, given the optimum conditions that prevailed during the lead up to the crash, there was sufficient time for mass losses to occur with consequent strength losses.

### **Crushing**

[61] In support of the contention that there was evidence of decay in the wood in the left wing at the time the repairs were effected the plaintiffs relied upon the condition of the plywood which comprised the recovered aft end of the left-hand inboard hanger (exhibit P9). In the repair process Mr Belfield replaced the nuts and bolts on each hanger including the left-hand inboard hanger. As the plaintiffs submit, the metal plates on either side of the end of the left-hand inboard hanger can be seen with the naked

eye to have compressed the plywood causing it to "dish". The compression is most pronounced at the location of the forward bolt which is surrounded by a narrower strip of metal plate than the aft bolt. The dishing is common to both faces of the plywood. It was submitted that the cause of the compression was pressure applied to the plates by the bolts and nuts which Mr Belfield used to clamp the metal plates to the plywood. It was also pointed out that the forward bolt has more thread exposure above the nut than the aft bolt indicating, it was submitted, that the wood between the plates had collapsed. The sides of the plates can be seen to not be parallel converging towards the forward end of the hanger extension.

[62] In support of his case Mr Budd called Mr R J Brenton, a licensed aircraft maintenance engineer and former Airworthiness Manager with the Department of Civil Aviation, to give evidence. Mr Brenton provided two reports and gave oral evidence. In his second report he developed at length a theory that loss of strength and stiffness in the left-hand aileron system led to the development of "aileron flutter" causing the crash. When he gave evidence in person he abandoned that theory following the explanations provided in the reports of the aeronautical engineers as to why aileron flutter would not have occurred in this Skyfox aircraft. In addition in his report he expressed the view that the strength of the timber laminates supporting the left-hand aileron parts had been compromised by

"over tightening of bolts holding the aileron hinge". That theory was not pursued by the plaintiffs.

[63] In addressing the issue of whether wood rot was present at the time of the repairs Mr Brenton initially relied upon a comparison between thread protrusions in the innermost hanger and the outermost hanger. However, he later acknowledged that the outermost hanger was a repaired hanger and was constructed of different and, importantly, new (and therefore more resistant) timber from the innermost hanger. In addition it is likely the new timber was thicker. He accepted that this information provided a reasonable explanation for differences in protrusion seen between the innermost and outermost hangers. He then concentrated on the differing thread protrusions to be seen on the fasteners to the innermost hanger.

Mr Brenton expressed the view that:

"When the timber of the laminates are healthy, the nuts may be tightened firmly to achieve adequate clamping pressure, without crushing the wood fibres ... However, if the timber of the laminates were to be weakened due to the presence of wood rot and/or a high moisture content, adequate resistance to the normal clamping pressure would not be present: the laminate would collapse until clamping pressure was sensed as normal. The resulting laminates damage would weaken the structure: I believe this to be what occurred in this case and is evidenced by the disparate tightening of the nuts and bolts, dishing of the aileron hanger bracket and crushing of the laminates... A LAME should have examined the laminates once he had noticed this disparity."

[64] The plaintiff relies upon these observations as evidence that the timber was the subject of decay at the time the nuts and bolts were applied by Mr Belfield in the course of repair. Further, it was submitted that an

experienced maintenance person would have noticed the difference in resistance offered by this plywood from the other plywood hangers and also the disparate tightening of the nuts and bolts. Had the repairer been diligent, it was submitted, the deteriorated condition of the wood would have been discovered and reported to the owner for his further action.

[65] In his report Mr Whitney observed that the fasteners were tightened to a point where the rib was partially crushed. He expressed the view that "this could have occurred simply by over tightening of the fasteners, however dry rot would have made this worse."

[66] In his evidence Mr Belfield discussed the tightening of the nuts and bolts and said he did not notice anything unusual in the process. It was done by "feel and through experience" which is a similar description of the process to that provided by other witnesses. There was much expert evidence, and a good deal of speculation, in relation to this issue.

[67] The principal response to the opinion expressed by Mr Brenton came in the evidence of the aeronautical engineer Mr Llewellyn, the consultant timber pathologist, Mr Powell, and the expert licensed aeronautical maintenance engineer, Mr Nicolson.

[68] Mr Powell was unable to replicate the measurements of the plywood remains of the left inner aileron hanger (exhibit P9) made by Mr Brenton and relied upon by the plaintiffs' engineer Mr MacGregor. He noted that this may have been due to the changed conditions of the timber between

the time of the measurements taken by Mr Brenton and the time of his own measurements, some eight months later. He expressed the view that, in those circumstances, it was "unlikely that much can be inferred accurately as to the circumstances 10 years ago" when the accident occurred. This observation regarding the reliability of measurements remains valid even though there was evidence of the presence of crushing as seen by Dr Romeyn in May 1998. Mr Powell noted the differences were an indication of the "variations inherent in the instruments, methods and materials". There is a range of unpredictable factors involved. He went on to observe:

"Considering that the bolt claimed to have caused the crushing was relatively loose and easily rotated by hand indicates that the wood even at 5.6 mm thickness was not clamped by the metal plates and that some further elastic recovery might yet occur up to 5.7 mm or more. This would suggest therefore that at the time of the SAE repair, when the aileron would have been reconnected to the hangers, the thickness of the plywood between the metal plates and clamped by the bolt would have been approximately 5.8 mm or greater and therefore well within the manufacturing tolerance of 6 mm Finnish Birch Plywood (5.7 mm to 6.3 mm). Any dimensional changes previously described as crushing that may have occurred are more likely to have been caused through the effects of water uptake subsequent to the SAE repair due to the inappropriate aircraft storage conditions, or impact damage and water immersion as a result of the accident or the effect of inadequate sample storage in Canberra."

He later said in relation to the plywood outside the direct influence of the bolts and plates:

"(T)he bolt and plates also act through indirect influence, the tendency is for the ply beyond the plates to splay as a result of the pressure of the plates thereby increasing the perceived thickness."

[69] Mr Powell went on to express the view that, in light of the history, it is more probable that the decay process started in August or October 1997 and that significant strength losses occurred in the weeks before 8 February 1998. He considered that what was believed by others to be crushing was actually “a result of normal dimensional changes within the accepted limits of moisture related expansion as a consequence of the wet exposure conditions, immersion in the river and subsequent poor storage”.

[70] Mr Nicolson expressed similar views. He noted that the loose nature of the fitting suggested that the plywood segment within the bolted plates had shrunk after moisture induced the swelling and subsequent drying out while compressed between the plates. He went on to say:

"The study of the current dimensions of this item is unsatisfactory and unconvincing because this fragment is now wholly unrepresentative of its condition at either the date of the repair of the outer hangers, or the time of the accident, since it has been stored in conditions of high temperature, moisture and humidity for 9 or 10 months before the accident, had apparently been flown for 23 hours between the date of the repairs and the date of the accident, has suffered violent separation from the wing, unknown stress during accident impact, immersion in river water for several days, and uncontrolled storage for almost 10 years."

[71] In his first report, Mr Llewellyn questioned the assumption made by Mr Brenton that crushing of the timber necessarily occurred due to “overtorquing” of the bolts or winding the nuts down into timber softened by rot at the time of repair or, indeed, that crushing occurred at all. He observed that crushing can be validly argued only if the dimension between the inner surfaces of the steel sides of the hinge brackets showed

a value significantly less than the minimum thickness tolerance of the ply. He said that a measurement some nine years after the incident "is not a valid indicator". He also observed the same effect will result if the bolt is correctly tightened and the timber subsequently swells due to moisture absorption. Where the timber has been constrained from swelling by the bolts and steel plates compression damage may result. He commented that Mr Brenton seemed to have ignored the cumulative effect of whatever swelling had occurred after the bolt was tightened in the repair process.

[72] Mr Llewellyn made the point that the presence of "dishing" of the metal plates as described by Mr Brenton indicated that the underlying timber was not softened by rot. He conducted and described tests to demonstrate that unless the timber is hard enough to sustain a load sufficient to cause dishing, the plates compressed the timber fairly uniformly. It followed that noticeable dishing of the plates could only occur if the timber was not softened by rot at the time the bolt was tightened. He went on to note that the experience gained from the test described in detail in his report was that otherwise sound hanger timber, that had sufficient weathering of the outer veneers, could be crushed by approximately 1 mm without noticeable effect on the timber below this depth. That underlying timber remained quite sound. He expressed the opinion that crushing of the order described by Mr Brenton "may merely reflect weathered outer veneers, rather than fungal decay of the hanger as a whole". His experience of other similar Skyfox aircraft indicated the condition is

likely to be "fairly typical". His conclusion was that the crushing described by Mr Brenton "if it actually existed, does not necessarily indicate the presence of rot at the time the bolts were tightened".

[73] As to the narrowing or compressing of the plates at the location of the forward bolt compared with the outer bolt, Mr Llewellyn observed that the width of the metal surrounding the outer bolt was greater than that surrounding the forward bolt. The difference was said to be around 50% and therefore:

"If you do the bolts up by feel to much the same feel on the spanner, much the same tension, very obviously the bolt that has the lesser area of metal around it will be pressed into the wood more deeply than the one that has the greater amount.... There is not so much bearing area to resist the load on the timber".

[74] The increased thread exposure discussed by Mr Brenton may be due to a combination of factors including one or more of the following: the increased compression of the plate at the narrower forward bolt area, the presence of weathered outer veneers and, possibly, a degree of over tightening by Mr Belfield or whoever tightened the bolt previously in place leaving a footprint for Mr Belfield. These are speculative possibilities with Mr Brenton relying upon one only of the available possibilities. It does not follow from what is to be observed of the remaining part of the left wing number one aileron hanger (exhibit P9) and the differing thread exposures that the laminates were not healthy at

the time of repair. Indeed the presence of the dishing would suggest the contrary.

[75] It was submitted on behalf of Mr Budd that inspection of the left inner aileron hanger (exhibit P9) when compared with the hangers from the right-hand wing (exhibits P12 and P40) provides direct objective evidence that wood rot was present when the defendant reattached the aileron. However, that ignores the other explanations for the condition of exhibit P9 discussed above. It also assumes the exhibits were identical or closely similar in relation to permeability, the degree of pre-existing deterioration and subsequent exposure. No account is taken of the effect of impact damage. No scientific comparison was carried out by any of the expert witnesses.

[76] In my opinion, the claim that a licensed aircraft maintenance engineer, such as Mr Belfield, should have examined the laminates beyond the extent to which he, and Mr Smith, inspected the aileron hangers, is not made out. The inspection as described by Mr Smith was thorough and would be expected to reveal any deterioration in the areas inspected. Further, had an even more thorough inspection taken place immediately after the repair, on the balance of probabilities, and in all the circumstances, I find that no wood rot would have been found to be present.

[77] The expert evidence of Mr Llewelyn and of Mr Powell sits comfortably with the evidence of the lay witnesses (including Mr Budd) as to what they observed, or more accurately, did not observe regarding the presence of signs of wood rot or other deterioration in the period up to the time the aircraft was returned to Mr Budd following the repair and through to the time of the last flight. The expert evidence and the lay evidence fit logically together. The theory proposed by Mr Brenton does not fit with the lay evidence. As I have noted, other theories put forward by Mr Brenton were subsequently abandoned. On this issue I accept the evidence of Mr Llewelyn, Mr Nicolson and Mr Powell over that of Mr Brenton and Mr MacGregor.

[78] I accept that wood rot was present in the left wing of the aircraft at the time of the crash. I accept the presence of that wood rot caused or contributed to the crash. I also accept that if Mr Budd had been aware of the presence of wood rot in the wing on the day of the crash he would not have flown the aircraft. However, I conclude that the plaintiffs have not shown on the balance of probabilities that wood rot was present in the aircraft at the time the repairs were effected or during the period the aircraft was in the possession of the defendant. If there was wood rot present at that time, which has not been demonstrated, it can only have been in an undetectable form. There was nothing to raise any concern in the minds of those effecting the repairs and there was nothing for them to

report to the owner of the aircraft. It follows that the plaintiffs' claims must be dismissed.

[79] The presentation of the case on behalf of the plaintiffs did not follow the form foreshadowed in the statement of claim. However, I address the particulars of negligence contained in that document. They are to be found in paragraph 33. It is convenient to deal with them in groups:

- (a) Particulars (b), (c), (d) and (e). These particulars are directed to the repair work carried out by the defendant. The quality of that work was not an issue in the proceedings and the allegations were not made out on the evidence.
- (b) Particulars (f), (g) and (i). These particulars reflect the thrust of the case presented on behalf of the plaintiffs and, for the reasons I have addressed above, have not been made out.
- (c) Particular (h). There was no evidence led identifying any test "ordinarily carried out to ascertain the presence or absence of wood rot in the ribs and attachment points of the left wing". There is no basis for determining that such a test existed or applied to the first defendant. Had such a test been identified and applied I would find on the balance of probabilities that the presence of wood rot would not have been established.

- (d) Particular (j). This particular raises a design issue which may have been directed at the manufacturer of the aircraft which, according to the pleading, was the second defendant. It is not a matter for the first defendant and was not an allegation pursued against the first defendant in the course of the proceedings.
- (e) Particular (k). As was made clear in the course of the proceedings, and as was acknowledged by Mr Budd, the maintenance of the aircraft was the responsibility of the owner. No relevant duty of care fell upon the first defendant. The allegation was not pursued in the course of the proceedings or in the addresses on behalf of the plaintiffs.
- (f) Particular (l). The evidence revealed that Mr Budd was given a direct warning by Mr Smith to take care in the storage of the aircraft. Mr Amiet advised Mr Budd that he was not satisfied with the state of the aircraft and Mr Budd responded that he didn't need any input from Mr Amiet. In any event the responsibility rested with the owner of the aircraft and not with the first defendant.

[80] In all the circumstances the proceedings on behalf of the plaintiffs are dismissed.

[81] Although the statement of claim refers to an alleged breach of contract on the part of the first defendant no such claim was particularised or pursued in the proceedings. Further, in light of the findings I have made above

the counterclaim of the first defendant against the second plaintiff is dismissed.

### **Assessment of damages**

[82] In light of the conclusions I have reached in relation to liability it is not necessary to assess damages in these proceedings. However, it is convenient that I set out in short form the conclusions I have reached in relation to the issues regarding the assessment of damages that remain in contention.

### **The second plaintiff**

[83] The second plaintiff (Mr Budd) and the first defendant reached agreement on all heads of damage save for general damages and the future cost of prosthetics. I was provided with a schedule of agreed heads of damage and I adopt the figures provided in that document. One item that was overlooked and should be included was an allowance for future medical visits and that has subsequently been agreed at \$8,567.

[84] In relation to general damages I accept that Mr Budd is a stoic person. He clearly understated the extent of the pain and suffering he has experienced over a substantial period of time and will continue to experience. The aircraft crash was horrific. It caused the death of his friend and serious injuries to Mr Budd. He described being in the aircraft after the crash saying "my legs were dangling and my arm was hurting, and I brushed my

forehead and there was all blood and I could feel a big gap on my head ... I worked out that I couldn't swim or go to the bank" and then a helicopter arrived. He was transferred to Royal Darwin Hospital and was in pain. He said he awoke in hospital with both legs in plaster up to his knees. He was unable to see. He had broken his nose. His arm was broken and that was placed in plaster.

[85] In subsequent medical reports the injuries suffered by Mr Budd were recorded as follows:

- a) bilateral compound fractures of his distal tibia and fibula involving the articular surfaces;
- b) fracture of the left radial styloid;
- c) partial degloving injury to his scalp;
- d) closed head injury.

[86] On 10 April 1998 his right leg was amputated below the knee. In March 2003 he had a revision to the stump to deal with ongoing pain and he was hospitalised for a period of three months. From an early time he was advised that he would probably require the amputation of his left lower leg because of impaired circulation, chronic ulcers and osteomyelitis. He transferred to a hospital in Queensland for a second opinion where he also underwent further procedures. He was then returned to Royal Darwin Hospital. He lived with that major concern for nearly 10 years until

shortly before the trial when he was advised that such an operation would not be necessary. He underwent numerous operations on his left leg. He spent a total of 11 months in hospital during which he was in pain for much of that time. He was asked about the pain and he said:

"Because of all the operations and skin grafts and taking bits of bone out of me and putting it elsewhere in my body, just after every operation, it was just horrific. It was very painful."

- [87] Whilst in hospital he caught an infection which delayed his healing process. He was in isolation for six weeks as a consequence. This was a difficult period for him. There has also been ongoing rehabilitation over the years.
- [88] Upon his release from hospital he was unable to walk or weight bear on his left leg. He wore a Hoffman's brace. He was wheelchair-bound and was not able to bear weight on his leg until June 1999. He then used crutches to get around. Eventually he was fitted with a prosthesis on his right leg. It was over a year after leaving hospital before he could get around without a wheelchair and without crutches. In the course of his evidence he showed the areas of scarring related to skin grafts. He told of his experience with an ulcerated hole on the inside of his left lower leg which remained present for some three years.
- [89] After leaving hospital he received substantial assistance and the appropriate award of damages in relation to the assistance has been agreed.

[90] At the time of the hearing Mr Budd said that he experienced pain every day. The pain was always present, starting in the morning and gradually increasing throughout the day. He had pain in his left lower limb, right stump and lower back. He had experienced persistent low back pain since the accident. In 2007 he was reported to have suffered a gradual increase in left hip pain which he attributed to uneven weight bearing and an awkward gait along with severely restricted range of movement in his left ankle. The more he used his legs the more pain he experienced. The pain could be "pretty severe" and he takes a significant number of painkillers every day. If he uses his artificial leg a lot he gets ulcers on the stump and that, in turn, restricts his activity. The ulcers are painful. His attitude, as expressed to one of his advisers, is that he has "got to put up with the pain and get on with it".

[91] In relation to his left leg he said he experiences pain at the ankle on a daily basis. It aches a lot in the night and, in the morning, he cannot walk immediately but gradually places weight upon it.

[92] He is now aged 57 years. Prior to the accident he had an active social life and an active sex life. He now has a very little social life and he lacks self-confidence. He is embarrassed by his appearance and does not have a sex life. He suffers flashbacks regarding the accident and this occurs nearly every night. He has difficulties sleeping, both getting to sleep and remaining asleep. Notwithstanding those matters he denied the presence of any psychological symptoms such as depression, anxiety or stress.

[93] His present functional status is spelled out in the report of the Occupational Therapist, Ms Sinclair, and I adopt her observations which are uncontested. In summary, he suffers significant restrictions on his personal activities, domestic activities and community activities. He has greatly reduced participation in leisure activities due to persistent pain and reduced energy levels and, of course, the limitations caused by the amputation of part of one leg and loss of function in the other. He suffers from restricted walking capacity, restricted standing capacity and reduced sitting capacity. His balance is impaired and he has a reduced capacity to lift and carry items. He is able to drive a modified motor vehicle. He now lives independently but requires assistance to carry out tasks involving work above his head or shoulders and in relation to tasks requiring bending.

[94] Notwithstanding the significant injuries he has suffered and the major limitations and impairments to which I have referred, Mr Budd continues to work up to 15 hours a day. He works seven days per week. He owns and manages a business which incorporates caravan and home rental and the selling of hay. The work involves both physical and administrative duties.

[95] Had Mr Budd been successful in his claim, I would have awarded general damages of \$170,000. In my view, a substantial part of that award should be attributed to past pain and suffering given the history that I have recounted. I would allow \$120,000 for past pain and suffering and

\$50,000 for future pain and suffering. Consistent with my discussion of the issue of interest rates in *Martin v Moore trading as Surefix Alumium*<sup>1</sup> I would allow interest on past suffering at 4% pa.

[96] The remaining issue in dispute in relation to the claim of Mr Budd concerned prosthetics. Mr Budd based his claim in this regard on the recommendations of Mr Vearing, a consultant prosthetist brought in for the purposes of the proceedings. He had not previously been involved in providing advice to Mr Budd but Mr Budd had attended upon him as a result of advice received from his treating prosthetist at the Royal Darwin Hospital that, "I would have to go interstate to get a better prosthesis". The defendant challenged the recommendations of Mr Vearing suggesting they provided a "Rolls Royce" solution not supported by his treating rehabilitation expert, Mr Flavell.

[97] The recommendations of Mr Vearing included the provision of four different prosthetic limbs. He observed, correctly, that Mr Budd is still a very active individual and he went on to say that the ability of Mr Budd to return to many of his pre-accident activities is directly related to the fit and function of his prosthesis. He noted that, in general, the residual limb is in good condition with no apparent areas of tenderness resulting from the injury or amputation surgery.

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<sup>1</sup> [1999] NTSC 34

[98] In the course of assessing the needs of Mr Budd he was fitted with an activity monitor which provided an objective indication of his level of activity. The information gleaned from that exercise was taken into account. The monitor revealed that Mr Budd did a considerable amount of walking however following the days on which he did most walking he did much less walking.

[99] The defendant submitted that any award of damages under this head should reflect what is in all the circumstances reasonable having regard to the whole of the evidence and the prevailing community and practice standards. When Mr Vearing was cross examined it was put to him that the items he had recommended were "not conventional at least within Australia". He disagreed with that proposition querying what was meant by "conventional" and contrasting what might be available under a government scheme with what might be available to an individual to return him to a normal functional level. In relation to traumatic amputees, who are a minority of amputees in Australia, he said they were usually young active males and he regarded his recommendations as being consistent with what "would be the norm for that group of individuals as amputees". Mr Flavell was called to give evidence immediately following Mr Vearing. He was not asked questions regarding what would be "normal" or "conventional" in the circumstances of this matter. There is no evidence to the contrary of what was said by Mr Vearing and I accept his evidence.

[100] The recommendations made by Mr Vearing appear in his report along with the relevant costings. I see no reason to depart from his recommendations. There has been no challenge to the costings. Had Mr Budd been successful in his claim I would have allowed, as part of his damages, the whole of the claim under this head.

### **The first plaintiff**

[101] The first plaintiff sought damages pursuant to the terms of the Compensation (Fatal Injuries) Act from the first defendant for herself, the estate of the deceased, for the children of the deceased and for her own children. The first plaintiff did not proceed against the second defendant and there were no proceedings taken on her behalf against the pilot of the aircraft, Mr Budd. For the reasons I have expressed in relation to the claim of Mr Budd I find that the proceedings of the first plaintiff must be dismissed.

#### **(a) Loss of economic support**

[102] The deceased was born on 9 November 1944. He met his future wife, Mrs Castine, in October 1988 and they soon developed a relationship. Both Mrs Castine and the deceased had been married before. Mrs Castine had four children from her earlier marriage and the deceased had two. In August 1989 the deceased moved to Bendigo in Victoria in the course of his employment and Mrs Castine moved with him. Thereafter they

moved around together following the dictates of the employment of the deceased. They married on 24 February 1991. There is no challenge to the evidence that they had a close, loving and fulfilling relationship.

[103] In November 1994 the couple moved to Darwin where the deceased obtained work with Sitzler Bros Pty Ltd. In April 1995 he commenced work with John Holland Construction and Engineering Pty Ltd as a senior general foreman and he remained in that position until October 1997. He then started work with GHD (Darwin) Pty Ltd as a general foreman and remained there until December 1997. He was unemployed as at the date of his death.

[104] As is acknowledged by the defendant he was a man who sought out work and, although unemployed at the time of his death, would have been expected to return to work. He had a long work history and there was nothing to suggest he was looking to an early retirement. The work he was performing in the period leading up to his death was of a supervisory kind. He was a senior general foreman, site manager and project manager. I find that it is probable that he would have worked until age 65 years. There would have been some periods of unemployment during that time.

[105] Mrs Castine claimed loss of economic support suffered by her from the date of the death of the deceased. Such a claim involves an assessment of loss for the period from the date of the death through to the date of

judgment and then for the period from the date of judgment to the anticipated retirement of the deceased from gainful employment: *Australian Telecommunications Commission v Parsons*<sup>2</sup>. It is necessary to determine a figure reflecting the relevant income of the deceased for those periods. The figure settled upon should provide a true reflection of the loss. The exercise involves a degree of speculation and a determination cannot be made with arithmetic precision: *De Sales v Ingrilli*<sup>3</sup>.

[106] I have been provided with a schedule that sets out the earnings of the deceased from 1991 through to the date of his death. There was a significant increase in his earnings when he and Mrs Castine came to Darwin in 1994. In my view the earnings of the deceased subsequent to moving to Darwin provide a more accurate reflection of his likely earnings into the future than a consideration of the longer term earnings provided in the schedule. There will need to be a consideration of, and allowance for, contingencies such as increases and decreases in income, periods of ill-health and periods of unemployment. The first plaintiff submits that a sum of \$55,000 gross, being the 1996 income, should form the basis of the necessary calculations. It was submitted that this would take into account positive contingencies such as increases in income and negative contingencies. The income earned by the deceased in 1996 reflected the higher incomes available in the Northern Territory and also

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<sup>2</sup> (1985) 59 ALR 535 at 540

<sup>3</sup> (2002) 212 CLR 338 at 348 and 373

the fluctuating environment in which the deceased earned his income. I agree with those submissions.

[107] This was a two income family. Mrs Castine also earned an income and I have a schedule of her earnings from 1993 through to 2006. The first plaintiff and the first defendant together urged me to adopt the approach to assessment referred to in the fourth edition of *Assessment of Damages for Personal Injury* where Professor Luntz said (at par 9.3.3):

"As noted in the quotation in 9.3.1 two-income families have become much more common. The method for dealing with such cases in England is an adaptation of the conventional method described in 9.3.2. The two incomes are added together, the conventional dependency figure is then applied (66% if there are no children, 75% if there are) and then the survivor's income is deducted. A similar approach has been adopted in Australia, but is not always followed."

[108] By reference to the schedule of income relating to Mrs Castine, the first plaintiff submitted that the court should adopt a figure of \$18,000 gross in respect of her income. The first defendant did not contend otherwise and I adopt that figure. The first plaintiff then made unchallenged calculations in relation to the loss in respect of economic support and reached a figure of \$206,970. The calculations were not criticised. If called upon to calculate damages I would have adopted the calculations of the first plaintiff and then rounded the figure down to \$200,000 for past loss of economic support. The parties were agreed on the interest that should be allowed adopting the approach reflected in *Renehan v Leeuwin*

*Ocean Adventure Foundation Ltd and Another*<sup>4</sup>. I would have allowed a sum of \$59,000 in this regard.

[109] An allowance in respect of superannuation in the sum of \$17,292 was claimed by the first plaintiff. There was no challenge to that figure and I would have allowed it.

[110] In respect of future loss it was submitted by the first plaintiff that I should assess the income of the deceased at \$55,000 gross as at the date of his death and make allowances based upon that figure. I would have done so and proceeded on the basis that the deceased would have worked through to age 65 years. I would have referred the matter to the parties to do the necessary calculations.

**(b) Consortium and solatium - Mrs Castine**

[111] The Compensation (Fatal Injuries) Act provides that damages in proceedings such as these may include damages for loss or impairment of consortium. It may also include solatium which is an award by way of acknowledgement of the pain and grief caused to a surviving near relative. In assessing the solatium it is necessary to consider each claimant separately and to "attempt to measure the intensity of sorrow and its duration". It is necessary to take into account both aggravating and

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<sup>4</sup> [2006] NTSC 4

mitigating factors and, of course, to endeavour to do justice between the parties: *Cook v Cavenagh*<sup>5</sup>.

[112] In relation to consortium reference was made to the following observations adopted by Ward J. in *Rozario v Fernandez*<sup>6</sup>:

"Consortium has been defined as a partnership or association; but in the matrimonial sense it implies much more than these rather cold words suggest. It involves a sharing of two lives, a sharing of the joys and sorrows of each party, of their successes and disappointments. In its fullest sense it implies a companionship between each of them, entertainment of mutual friends, sexual intercourse -- all of those elements which, when combined, justify the old common law dictum that a man and his wife are one person."

[113] In the present case there is no dispute that the relationship between the deceased and Mrs Castine was a close and fulfilling one. They travelled together to various locations whilst the deceased pursued his employment. There is nothing to suggest that they did not enjoy a full life together each being involved in the lives of the other and the lives of their children. There was a true sharing of the successes and disappointments in life by Mrs Castine and the deceased. Mrs Castine has not formed any new relationship since the death of the deceased.

[114] Consistent with the observations of Gallop J in *Jones v Bleakley*<sup>7</sup> it is appropriate to bear in mind the overlapping nature of awards of damages for loss of consortium, solatium and damages to cover the loss of household services. There was a dearth of evidence in relation to the

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<sup>5</sup> (1981) 10 NTR 35

<sup>6</sup> (1977) 16 ALR 445 at 452

<sup>7</sup> (1981) 12 NTR 1 at 5

issue of household services and the allowance in that regard must necessarily be small. In all the circumstances I would have allowed a sum of \$30,000 in relation to these heads of damage.

**(c) Solatium for children**

[115] There is a claim for solatium made on behalf of the two children of the deceased and for the four stepchildren of the deceased. I have discussed above (par 110) the nature of solatium. It was the submission made on behalf of the first defendant that an award for solatium, arguably, should not be made in relation to each of the stepchildren. In *Cook v Cavenagh* (supra at 36) Muirhead J quoted with approval an observation of Lord Guest in *Chaplin v Boys*<sup>8</sup> to the effect that "solatium properly so-called denotes a separate right of action given only to near relatives". The Compensation (Fatal Injuries) Act itself provides that proceedings may be brought for the benefit of those members of the deceased person's family who sustained damage by reason of his death. Included within the definition of "a deceased person's family" is "a person to whom the deceased person stood, immediately before his death, in loco parentis".

[116] In the present case there is a real question whether the deceased stood in loco parentis to the stepchildren. In *Parsons v Australian Telecommunications Commission and Others*<sup>9</sup> Muirhead J, citing early English authorities, ruled that a person stands in loco parentis to a child

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<sup>8</sup> [1969] 2 All ER 1085 at 1096

<sup>9</sup> (1983) 28 NTR 19 at 22

when the child is cared for, regarded and supported as a member of the family unit by that person. It will exist when a father has taken upon himself the duty of a father of a child to make provision for the child.

[117] The first defendant acknowledged that a claim for solatium was available to Richard Castine, the 38-year-old son of the deceased. However, it submitted that the evidence revealed limited contact between the claimant and the deceased over the years although it was accepted that the evidence did establish a close bond and a sense of loss. It was submitted that any award would be for a modest amount. Reference to the evidence of Richard Castine, which was in the form of an unchallenged statement, revealed that he was financially independent of his father after he left school. When he was about 20 he lived with him under a subsidised rent. He said that although he was more or less financially independent of his father at the time of the death, his father had assisted him "throughout my life". He described the death as being "personally very tragic for me". I would have allowed an award of \$20,000.

[118] For the same reasons and subject to the same observations the first defendant also conceded that an award for solatium was available to Rebecca Farrell, the 36-year-old daughter of the deceased. The evidence of Ms Farrell showed that she was married with one child. After her parents separated she sometimes lived with her father and sometimes with her mother. She left school at about 16 years of age and was then "semi-financially independent". She spent some time overseas but maintained

"very close contact with my father ringing him regularly and writing to him while I was away". She described her relationship with her father as "very close" and said he was "a loving, supportive and caring man". She said she was devastated by his death. Again I would have allowed an award of \$20,000.

[119] In relation to Naomi Hartwig, a stepchild aged 27 years, the first defendant acknowledged that the evidence established close contact until the death of the deceased and a degree of financial and emotional support provided by the deceased to the child. It was submitted that "notwithstanding the cautionary note in the authorities, it is conceded that it is open to the court to award a modest sum by way of solatium". The evidence of Ms Hartwig revealed that she met the deceased when she was about seven years of age and she spent weekends each fortnight with her mother and the deceased. When she was about 11 or 12 she and her sister Janica moved in to live with her mother and the deceased. She lived with them in their home when they moved to Darwin and she continued to live there until after the death of the deceased. She looked upon the deceased as a father figure and he supported her financially. She was very distressed when she learnt of the death and said "losing Ian was the same as losing my father". It is clear from her evidence that the deceased filled the role of a father in her life. He stood in loco parentis to her. I would have allowed an award of \$15,000.

[120] In relation to the remaining stepchildren Natasha Faulkhead (aged 36), Rebecca Beckman (aged 35) and Janica Boord (aged 29) it was submitted that the evidence does not support the making of an award. Their age, relationship with the deceased, history of contact with the deceased and particular circumstances do not support an award, notwithstanding the evidence of affection and respectful relationships.

[121] Janica was aged about nine years when the deceased and her mother entered into the relationship. Initially she and Naomi visited on each second weekend. When she was in year eight or nine at school and aged 14 or 15 years she and Naomi moved in with the deceased and her mother. Mrs Castine puts this as occurring in February 1993. In any event it could not have been for very long because, when the deceased obtained work in Darwin in 1994, Janica remained in Victoria to complete her schooling. She came to visit him and her mother in Darwin and the deceased would pay the fares. She said she looked to him as a father and he provided her with support, encouragement and assistance. She also said she was "absolutely devastated" on hearing the news of the death of the deceased.

[122] Natasha gave evidence that she was living with her mother at the time the relationship with the deceased commenced. She must have been about 16 years old at the time. Natasha said that they "all moved in to a house together" and that her sisters Naomi and Janica would visit each second weekend. She described the deceased as a good friend and a father figure. When her mother and the deceased moved to Bendigo she remained

behind because she had a job. She moved in with a friend. She was then aged 17 years. She acknowledged that she left home shortly after her mother and the deceased got together. She next lived with her mother and the deceased for a period in 1992 and 1993 whilst she saved money before travelling overseas.

[123] Rebecca Beckman was also living with her mother when the relationship commenced. She was about 15 years old at the time. When the deceased and her mother moved to Bendigo in August 1989 she went with them. They moved back to Mildura in October 1989 and Rebecca remained in Bendigo to complete her schooling. She understood the deceased contributed financial support to her and the other children. He later paid for part of her wedding. After she completed her final year of high school she only lived with them for a short period. She visited them in Darwin. When she heard of the death she was "a complete mess".

[124] It is clear that the deceased had a close and loving relationship with his own children and with the children of Mrs Castine. As I have ruled above, in relation to Naomi the relationship went further and immediately before his death the deceased stood in loco parentis to her. The situation is different in relation to Natasha, Rebecca and Janica. Whilst the evidence reveals that they held the deceased in high esteem and great affection and that he helped each of them in different ways, it did not go so far as to establish that he stood in loco parentis to them. Because of their ages and their different stages of life at the time the deceased and

Mrs Castine commenced their relationship, and because of the more limited history of contact between each of these stepchildren and the deceased, it has not been established that the relationship became one where the deceased stood in loco parentis to them. In those circumstances an award of damages is not available.

[125] The remaining items of damage, such as the funeral expenses, were agreed between the parties and do not need to be addressed by me. Having discussed the contested issues relating to damages and in light of the conclusions I have reached on liability, I will not proceed further.

[126] There will be judgment for the first defendant against the plaintiffs. I will hear the parties as to costs.

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