

DIRECT EXAMINATION

BY DUBUC:

See page 175

Q Good afternoon, Captain. Would you state your name and address for the Jury, please.

A Tilford W. Harp, [REDACTED] O'Fallon, Illinois.

Q And your occupation is in the Air Force?

A Yes.

Q Where are you presently stationed?

A At Scott Air Force Base, Illinois.

Q Would you state your professional background for us, please.

A Shortly after graduation from high school in 1964, I enlisted in the Air Force. I served for approximately two years as an enlisted man, at which time I applied for and was accepted in the Air Force Academy. I graduated from there 1970 with a BS degree in mathematics, went to pilot training following that, served two years in 141's at Travis Air Force Base, California, and I flew C5's for five years following that. After my tour in C5's, I went to the Air Force Institute of Technology in '78, received a master's in operations research and then I was assigned to Scott Air Force Base in December of last year.

Q In the course of your flight training and professional training, did you have any aerophysiological training?

A Yes, sir, I did.

1 Q That would include what?

2 A Initially, there's an initial indoctrination course
3 which lasts approximately four to five days, I don't know
4 exactly. But it includes both ground training and physiological
5 training, hypoxia, symptoms of hypoxia, and that sort of thing.
6 After that, then you have an altitude chamber flight that will
7 take you up to various altitudes, and experience in rapid
8 decompression, primarily for us crew members to recognize our
9 own symptoms of hypoxia and what to do about them.

10 Q And do you have to go through that sort of training
11 on a recurrent basis?

12 A Yes, we do. It's an Air Force reg that you have to
13 go through it every three years, as long as you are an active
14 crew member, every three years.

15 Q Have you recently been through it?

16 A Last time I went was in '79, at Wright-Patterson,
17 Ohio.

18 Q Does this recurrent training also include decompression
19 and so forth?

20 A It does to some degree; however, it's mostly an
21 academic atmosphere on the decompression, maybe a one-hour block
22 on decompression sickness.

23 Q Have you experienced decompressions in the altitude
24 chamber, actually?

25 A Yes, sir, I have.

1 Q Does that include rapid decompression?

2 A Yes, it does include rapid, and there was another one
3 that's like a slow -- I hate to use the term decompression, but
4 it takes you to approximately 25,000 feet, at which time you go
5 off oxygen and basically recognize your symptoms of hypoxia,
6 and then they bring you back down and take you up to, I believe,
7 it's 35,000, somewhere in that neighborhood. Then you have
8 what they call a rapid decompression, actually go from zero to
9 35,000 feet.

10 Q When you mentioned the 25,000, you say you take your
11 mask off?

12 A Yes.

13 Q How long a period do you have the mask off?

14 A It depends on the individuals, and that's primarily
15 the reason for the training, that the symptoms vary from person
16 to person. As I recall, we have anywhere from four to five
17 minutes or possibly longer for that training.

18 Q And what altitude is that?

19 A 25,000 feet.

20 Q At lower altitudes, in connection with your training,
21 do you have different indications in your training as to what
22 time would be at different altitudes?

23 A Well, the time increases or time of useful conscious-
24 ness increases the lower you go. The higher you go, it decreases.
25 It's not a linear type thing, generally, but about 30,000, it

1 drastically drops down.

2 Q How about below 20,000?

3 A You are talking again quite a bit more than six minutes
4 I don't recall the exact figure.

5 Q Now, was there a time when you were assigned flight
6 duties in the Phillipines, in 1975?

7 A Yes, I was.

8 Q To what unit were you assigned?

9 A At that time, I was assigned to the 22nd Military
10 Lift Squadron at Travis Air Force Base, California. I was
11 assigned there in 1973, at which time I started flying C5's.

12 Q Did there come a time that you flew a mission on a
13 C5 into Saigon on April, 1975?

14 A Yes, sir.

15 Q Could you tell us how that occurred, the background.

16 A Basically, we picked the mission up at Hickam Air
17 Force Base, Hawaii, and the mission then consisted of an off-
18 load at Saigon. And we flew the mission through Guam, Anderson
19 Air Force Base, Guam, and then to Clark. Then, we had a crew
20 rest there at Clark. And we were alerted for the same mission
21 twelve hours later, and again with the initial idea of being,
22 just being an off-load of equipment at Saigon.

23 Q Before leaving Clark or subsequently, were you given
24 any briefing as to what your return load would be?

25 A The only briefing I was given was by Captain Traynor,
who was the aircraft commander. And I wouldn't really classify

1 it as a briefing as such, more of an informal -- what infor-
2 mation he had, he passed on to the rest of the crew. At one
3 time, the air crew was called in at Clark, and the possibility
4 was mentioned that we might be evacuating some of the civilians
5 out of Saigon.

6 Q Were you given any briefings at Clark other than that?

7 A Well, we had the standard -- any time we went out of
8 the country, we had to have a security briefing, due to the
9 volatile nature of the area. We were briefed specifically
10 about the high SAM surface areas that were a threat in the
11 Saigon area.

12 Q Any other information given to you before you went to
13 Saigon?

14 A Nothing other than the normal briefing that you get
15 from the command post and all the different agencies.

16 Q Did there come a time when the mission departed for
17 Saigon?

18 A Yes, there was. There was some delay. We had a
19 maintenance delay, as I recall. Once that problem was solved,
20 then there was a problem apparently on the ground in Saigon,
21 coordination problem. We were called inside, and after we got
22 inside, they said, okay, everything is settled, get back in
23 your plane and go. During the delay, we were also delayed --
24 we asked for extra equipment at Clark, whatever they had,
25 medical equipment, survival gear, blankets, whatever was

1 available.

2 Q Now, did there come a time when you arrived in Saigon
3 on this mission?

4 A Yes, there was. We arrived at approximately 1300,
5 one o'clock in the afternoon, local time.

6 Q And was your cargo unloaded first?

7 A We parked on one of the taxiways of Saigon, and set
8 up security on the aircraft. There was an armed guard, Viet-
9 nameese armed guard, and an air crew also participated in the
10 aircraft security. We opened the back end, or the aft doors
11 and continued with the off-load.

12 Q Where were you during the off load?

13 A Almost all the time I spent in the flight station
14 area. There was one time that I left to go talk to some of
15 the ground personnel in Saigon, to try and find some loading
16 strips to assist in the on-load, whenever that would come
17 about. The only other time I left the flight station, I did
18 a real brief, like a walk-around inspection through the cargo
19 compartment area, just kind of a walk down, turn around and
20 walk back, to make sure all equipment that we needed was there.

21 Q Now, were you involved or did you participate directly
22 in loading the passengers, in particular, the children, that
23 were loading on board?

24 A No, I didn't. I was on the flight station.

25 Q And after that loading was completed, did there come

1 a time when the aircraft took off?

2 A Yes, there was. It was approximately 1600 local
3 Saigon time, we took off, approximately three hours after we
4 landed.

5 Q And tell us what occurred during the timeout prior to
6 the decompression.

7 A We commenced to take off, and due to the high SAM
8 threat in the area, we did what we called a maximum performance
9 takeoff, which means we kept the power up a little bit higher
10 than normal and climbed up at a slower air speed than normal
11 to gain altitude faster. That was pretty much normal, until
12 we passed about 20,000 feet, and at this time, we began to
13 accelerate for normal climb high speed, passing approximately
14 20,000 feet, a loud bang followed by fog instantly in the
15 cockpit, which I immediately recognized as rapid decompression.
16 I put on my oxygen mask and the rest of the crew began donning
17 their oxygen mask. Everyone began to check in on oxygen.

18 Q And you described a fog. What is that fog, do you
19 know?

20 A It was condensation, just an immediate type thing. It
21 was there and it was gone.

22 Q Had you seen that before?

23 A Yes, in the altitude chamber. It was the exact
24 duplicate of the altitude chamber.

25 Q Did you don an oxygen mask?

1 A Yes, I did. I was the first one on oxygen. I
2 informed -- there was a momentary delay on some of the other
3 crew members as to exactly what happened. And I made a state-
4 ment to the effect that we had had an RD, don oxygen and
5 check in on oxygen. and the rest of the crew began to get on
6 oxygen and actually physically check in on oxygen.

7 Q When you said you made a statement, that was what,
8 on the intercom, where you talked to the crew?

9 A Correct.

10 Q Can you describe what you did with the aircraft, what
11 the aircraft did following the decompression.

12 A At this time, Captain Traynor donned his oxygen
13 mask. He began a slow descending left turn back to Saigon.
14 I was reaching up to the overhead panel. I turned on the
15 no smoking, fasten seat belt signs. We had numerous malfunc-
16 tioned lights in the cockpit, and basically I was looking at
17 those to see what we had and what was wrong and this and that,
18 at which time the pilot remarked that he was not able to bring
19 the nose of the aircraft up, and it became quickly evident that
20 we had no control over the nose of the aircraft. We entered
21 into what started out as a shallow descent and rapidly accelerated
22 into a rapid descent. We tried all the controls that we had,
23 and eventually we came to the conclusion that the only way to
24 get out of the dive was by adding full power, which we did.
25 And that caused the aircraft to begin rapid climb. And again,

1 we realized the only way to get out of the climb was by reducing
2 power, which we did, so through this cycle of up and down, we
3 determined the only way of controlling the aircraft was with
4 power, the actual altitude of the aircraft.

5 Q Were these changes, where you applied power and rose
6 and then decreased power and descended, were those abrupt?

7 A The initial climb and dives I might classify as abrupt.
8 As far as the turns, no, those were very sluggish. At this time
9 we lost hydraulic systems 1 and 2, which controlled our left
10 ailerons and half of our right ailerons. So, effectively, we
11 had half of our right ailerons and it was very difficult to
12 abruptly turn the aircraft. The climbs and dives initially
13 I have to classify as abrupt, but they were the accelerated
14 type of abrupt. They didn't start out abrupt, they started
15 out gradually and went to abrupt real fast.

16 Q All right. How about the changes; in other words,
17 the change from climb to dive, were those abrupt?

18 A I wouldn't say the changes were abrupt, no. It was
19 just like you have arrested the dive and the aircraft would
20 begin a climb that would accelerate to abrupt climb, and we
21 would arrest that and start into a gradual descent and accel-
22 erate into a rapid descent. We had about two or three cycles,
23 I would say, of those that I would call anywhere close to being
24 abrupt.

25 Q Have you seen the man hour information or time versus

1 altitude information?

2 A Yes, I have.

3 Q Do you recall approximately what period of time it was
4 before you were at certain altitudes?

5 A From my observation or from the MADAR tape?

6 Q Whatever you observed or MADAR.

7 A At the time, I took off my oxygen mask, roughly,
8 somewhere around 16,000 feet. I was having trouble commun-
9 icating with my oxygen mask because the microswitch was cutting
10 in and out. I discarded the mask at 16,000, so I could at
11 least communicate with the rest of the crew, as I recall--
12 as I recall, somewhere in the three to four minute time range.

13 Q Did you experience any symptoms or any feelings of
14 hypoxia after you took the mask off?

15 A No, sir, I did not.

16 Q And were you awake during this entire period of
17 time?

18 A Yes, I was.

19 Q Were you awake all the way to the ground?

20 A Yes.

21 Q And after the accident?

22 A Yes.

23 Q Now, with respect to the airplane, is there a heating
24 and air-conditioning system on the airplane?

A Yes, there is.

1 Q And without going into all the specific details, can
2 you tell us whether that was working that day?

3 A As far as I know, it was working, it should have been
4 working. It's tied directly to the engines and as long as
5 they are functioning normally, the temperature system should
6 be working correctly.

7 Q Is that temperature system, if you know, thermostatically
8 controlled?

9 A Yes, it is. What you do is you take the exhaust
10 air off the engines and through various thermostats in different
11 compartments, you can actually control the temperature of the
12 air coming in.

13 Q Now, did you ultimately learn that you lost the aft
14 cargo door?

15 A That was shortly after the rapid decompression, that's
16 correct.

17 Q And would that have any effect on the heating or air-
18 conditioning system?

19 A As far as I know, it should not. I noticed no
20 difference where I was sitting, anyway.

21 Q Did you receive any requests for any additional heat
22 or change of temperature from the troop compartment or any other
23 parts of the airplane?

24 A Not that I can recall, not over intercom, anyway.

25 Q Now, did there come a time during this descent you

1 approached the ground and prepared for a landing?

2 A That's correct.

3 Q And can you describe the landing for us, what you
4 observed and what you remember about it.

5 A The first landing, I would classify as a relatively
6 smooth landing under the conditions, quite honestly. I have
7 made firmer landings since then on a normal runway, I have
8 seen firmer landings, both by military and commercial aircraft.
9 I was prepared for a much firmer impact than what we had on
10 the first landing.

11 Q Was the gear down at that time?

12 A Yes, we had all the gear extended.

13 Q Okay. Can you tell us anything about, more about
14 that landing or anything else you remember about the final
15 landing of the aircraft.

16 A About the first landing or the final landing?

17 Q Either one, just tell us what you recall about the
18 landing.

19 A First landing didn't last all that long, quite honestly.
20 We were on the ground, I would say, maybe ten, fifteen seconds,
21 maximum. Our air speed was very high, and I do remember trying
22 to get the aircraft to stop by riding the brakes as hard as I
23 could. For some reason, we were thrown back in the air and
24 actually got airborne again. And we were coming up on the bend
25 of the Saigon River, and rather than trying to land in the

1 middle of the river, we applied full power and cleared the
2 river just on the other side.

3 Q Now at this time, after the first landing, were the
4 wings still on the airplane, the tail surfaces on the airplane,
5 the nose on the airplane, the engines on the airplane?

6 A As far as I can tell by flying, it still seemed to
7 fly okay. We could still control the ailerons. We did turn
8 a little bit after that. The ailerons were responding and we had
9 no response from the --

10 Q Okay. Now, go ahead and tell us what happened.

11 A The second landing I would classify certainly as
12 firm impact. There was no doubt about it, extremely rough, it
13 appeared to be a slightly nose low attitude in the cockpit.
14 Immediately we lost all electrical power in the cockpit. Mud
15 was flying up over the windshield and it got kind of black,
16 you didn't have the normal daylight in from the outside. I had
17 a minor turning sensation, not to the point of actually being
18 upside down, and I could feel a sliding through the swamp.
19 You could actually hear the sliding and squishing sound as going
20 through the bog. As far as how long, I really couldn't say, but
21 it was a fairly smooth slide.

22 Q Now, with respect to that, did you observe or did you
23 have any estimate from your experience or anything you observed
24 in the airplane as to the G forces on that landing?

25 MR. LEWIS: Your Honor --

1 THE COURT: Just a moment, Captain.

2 MR. LEWIS: Unless this witness is an expert in this
3 subject, the MADAR was out --

4 MR. DUBUC: I asked if he observed in the airplane or
5 his experience.

6 THE COURT: Objection is overruled.

7 MR. LEWIS: That's two questions, then, Your Honor.

8 THE COURT: Let's have one question.

9 BY MR. DUBUC:

10 Q All right. Based upon your experience, do you have
11 any, or did you ever formulate any estimate of the G forces
12 on the landing?

13 MR. LEWIS: He's not an expert.

14 THE COURT: And that is overruled.

15 A During pilot training, we go through certain maneuvers
16 that require excessive G's, two, three, four G's sometimes, and
17 I can't tell you precisely the amount of G's, but as far as I
18 can recall, it didn't seem to be anything in excess of two G's,
19 it wasn't noticeable at the time.

20 Q Now, you mentioned you could hear something going
21 through this swamp or --

22 A Could actually hear us sliding -- I assume a sliding
23 sound through the water and through the swamp, our cockpit area

24 Q Did there come a time when the cockpit stopped?

25 A Yes, it was. Like I said, it was very dark inside.

1 There was a sliding sound, and all of a sudden it became very
2 quiet, at which time somebody remarked, "Get out of here." And
3 we all began to exit out of the wreckage.

4 Q Do you recall who was in that cockpit compartment
5 with you at the time?

6 A Yes, it was myself, Captain Traynor was the aircraft
7 commander. Then, it was Captain Lowe, Captain Langford was
8 the navigator, and Sergeant Engles was the engineer. So, there
9 were a total of five in the flight stationary.

10 Q And did they all survive?

11 A Yes, they did.

12 Q And were you injured?

13 A I was slightly injured. Unknown to me at the time we
14 rolled upside down, on my side of the aircraft and in doing
15 that kind of pressed in the top of it and forced all the
16 instruments and glare shield and anything in front of me on
17 top of me and on my legs. And I don't think that in itself
18 did the damage, but when I tried to get myself out of the
19 wreckage, I sprained both my ankles.

20 Q And did anybody -- did you observe anybody else injured
21 in the cockpit area?

22 A Not from the cockpit area.

23 Q You mentioned you got out of the cockpit. What did you
24 do then?

25 A Well, initially, I got out -- I remember looking what
I thought would be in back of us in the troop compartment, where

1 the troop compartment should have been, and what I thought was
2 in back of us was just a giant ball of fire about 150 yards in
3 the distance. I had a very depressing feeling, thinking that
4 was the troop compartment with all the children in it, and I
5 guess that and the excitement of the situation, I began to
6 hyperventilate. I walked around the wreckage of the flight
7 station area. I could tell I was breathing very rapidly. I sat
8 down and took a couple of deep breaths, at which time someone
9 hollered, "Over here, they're alive," or something to that
10 effect. And that's when I looked over to the left about 30,
11 40 yards from the flight station area and that's where I saw the
12 troop compartment. And they were opening up the doors, and I
13 could actually see that somebody had survived.

14 Q Did you observe any fire in the area of the troop
15 compartment when you finally viewed it?

16 A No, I did not.

17 Q Did you determine what portion of the airplane was
18 burning, the first fire you saw?

19 A Later on, we determined that it was the wings and the
20 engine.

21 Q Can you give us any estimate of how far from the cock-
22 pit that was located?

23 A I'd say about 150 yards from the cockpit.

24 Q Can you give us any estimate as to how far it was
25 located from the troop compartment?

1 A Well, it was a little bit farther, maybe 170 yards,
2 because the troop compartment was kind of aft and over from
3 the flight stationary.

4 Q Do you recall anything about the wind on that day,
5 after the accident?

6 A As I recall, it was either calm or maybe five knots.
7 We, as pilots, don't get worried about wind unless it gets in
8 excess of ten or fifteen knots. I know it wasn't that high
9 and I don't recall the wind blowing towards us or anything
10 like that.

11 Q Okay. Now, you mentioned -- what did you do after
12 you sat down -- I don't know where you sat, but you said you
13 sat down.

14 A It was part of the wreckage of the flight station area.

15 Q What did you do after that?

16 A Take a couple of deep breaths, trying to control my
17 rate of breathing, when I heard someone yell, "They're alive",
18 or something like that. And I could see several of our crew
19 members going over through the swamp, and the door of the troop
20 compartment was being opened up. And I followed everybody over
21 to the troop compartment -- not everybody, but several of our
22 crew members -- and we went over to the troop compartment. And
23 by then, the door was open and we began to pass the babies
24 out from the troop compartment.

25 Q Did you assist in that operation?

1 A Yes, I did.

2 Q Did you actually handle some of the babies?

3 A Yes, I did. I didn't handle all of them. I left the
4 evacuation scene, I would say, halfway through, somewhere in
5 that area.

6 Q Can you tell us what you observed as to those young
7 babies or children that you handled.

8 A The majority of them, as we were handing them out,
9 they were still asleep and just beginning to wake up, either
10 from the handling or all the excitement or whatever, beginning
11 to cry. I wouldn't call it a hurt-type cry, more like a fussy-
12 type cry, being wakened up and didn't want to be awakened.
13 And the children that I saw, I didn't see any cuts or scratches
14 or anything like that.

15 Q You said something about you left the area shortly
16 after that.

17 A Yes, I did.

18 Q How did you leave the area?

19 A The helicopters arrived three to four minutes after
20 the crash, arrived at the scene. We were piling the babies
21 out of the troop compartment and setting them around on the
22 ground, and it was getting rather cluttered with the babies
23 now. So, when the helicopters arrived, we started carrying the
24 babies on the helicopters. It was during that time frame that
25 I was having a very difficult time walking, and I thought it was

1 just maybe the footing, the bogging. And that's when one of
2 the crew members told me that my legs were hurt and that I
3 should go on among the helicopters.

4 Q You say you were walking around in the bog.

5 A Well, from the troop compartment over to the helicopter
6 and back to the troop compartment.

7 Q Do you recall seeing any number of ditches of any kind
8 in the bog?

9 A I don't recall anything like that. I wasn't really
10 looking for them. I do recall the footing, I thought, was very
11 treacherous. I was having a very difficult time walking. One
12 time, when you step down, you might go up to your knees, other
13 times are times you had firm footing. But I don't recall any
14 ditches.

15 Q When you say the footing was treacherous, was there
16 a lot of water in the area?

17 A In spots, it's like a bog. You can step up and go up
18 to your knee cap and step forward and be solid ground.

19 Q Soft surface.

20 A Soft, very soft in places.

21 Q Now, with respect to what you mentioned on landing,
22 do you recall how many impacts there were?

23 A There were only two, what everybody is calling two
24 impacts. Honestly, I would only call one of them an impact.

25 Q One of them was the first --

1 A One of them was the soft touchdown, impact, whatever
2 you want to call it. The second was the firm impact, so
3 there were two impacts.

4 Q Now, you mentioned you sat on something. I would like
5 to show you something, and ask you if you recognize that.

6 (Whereupon, charts were set up in the courtroom.)

7 MR. LEWIS: Please number for the record.

8 MR. DUBUC: 2DD.

9 BY MR. DUBUC:

10 Q Do you recognize that, Captain?

11 A Yes, I do.

12 Q Tell me what that is.

13 A This is the underside area of the flight station area
14 where all the tubes and stuff are, that is the top of the
15 cargo compartment or the bottom of the flight station.

16 Q This is the bottom of the flight station, where you
17 were located?

18 A That's correct, where roughly we were over on the
19 right side, a little bit over underneath the right, buried in
20 the mud.

21 Q This is where you sat down after the accident?

22 A Just a little bit forward to that. There was a big
23 piece of metal sitting in front of what was left of the nose of
24 the aircraft.

25 Q You are certain that's the bottom of the cockpit?

1 MR. LEWIS: Your Honor, counsel is leading this
2 witness.

3 THE COURT: That's leading.

4 MR. DUBUC: All right. Let's see the next one.

5 BY MR. DUBUC:

6 Q If you could just hold that one up for a minute so
7 the Jury can see both of them.

8 Do you recognize that, also, Captain, that's I believe
9 2FF.

10 A That's the aft sections of the flight station area;
11 in other words, the back end towards the back.

12 Q Are those two things sticking up --

13 MR. LEWIS: Counsel, please. Your Honor, he shouldn't
14 lead the witness.

15 BY MR. DUBUC:

16 Q Can you tell me what those -- can you identify the
17 two sharp pointed things sticking up on the left picture and
18 the right picture?

19 A I would just say parts of the fuselage or something,
20 looks like the same parts to me.

21 Q Is that also part of the bottom of the cockpit?

22 A Actually this section here would be a little bit aft
23 of it, called the aft flight deck.

24 Q Let's see the next one, please.

25 Can you identify that for us?

1 A This is the flight station area itself. As you can see,
2 we rolled on the right side, and we exited out the pilot's side
3 window, which is the one window there. It's about two feet off
4 the ground. And that is the same picture as this over here,
5 just from the other end, basically.

6 Q You say the same picture, referring to 2DD.

7 A That's correct, it's the same section of the aircraft.

8 Q Now, can you tell me whether you recognize any portion
9 of the fuselage being still attached to the flight station?

10 A Well, these two big pieces sticking up on the left are
11 actually parts that join the fuselage. I guess you could
12 classify that as part of the fuselage.

13 Q And is this line here, can you tell me is that the
14 actual bottom of the cockpit area?

15 A That's roughly what you call the bottom of the cock-
16 pit area.

17 Q This is Exhibit 3C. We have been -- is Exhibit 3C
18 the one you have identified as the other side of the cockpit
19 area?

20 A Yes, it is.

21 Q I have one more I would like to show you. This is
22 Exhibit 27. Do you recall seeing that before, Captain?

23 A I have seen -- not the painting, but I have seen a
24 rough, I guess you would call it artist's idea of it.

25 Q Do you see anything on there you can identify with the

1 cockpit crew deck we have just been looking at?

2 A It depicts what looks like the flight deck being
3 hurdled off there.

4 Q Is that the portion that you were seated in?

5 A That's correct. I was in the right seat.

6 Q Do you recall anything in connection with the second
7 landing, the slide that you mentioned and coming to a stop,
8 that would conform to that conception?

9 A No, sir, I would not. Like I said, it was a very
10 smooth slide. There was no jolt when we came to the end. It
11 was just a smooth slide and just came to a stop; whereas, I
12 would think if we were being -- if we had done the way that
13 picture depicted, there would have been a third jolt when we
14 actually impacted the ground the third time, but there was no
15 third jolt.

16 Q Now, you said you went over by the troop compartment
17 to help unload the babies.

18 A That's correct.

19 Q Did you see any evidence of any fire in that area,
20 yourself, when you were over there?

21 A No, I did not. There was no fire in that area.

22 Q THE COURT: It has been asked and answered.

23 BY MR. DUBUC:

24 Q Did you smell any fumes?

25 A No, sir, there were no fumes, either fuel or otherwise
around the wreck.

1 Q Was there any smoke in the area of the troop compartment

2 A The only smoke was out in front of the troop compart-
3 ment and the flight station. That was the only smoke in the
4 entire area.

5 Q How far away was the smoke?

6 A About -- I would say 170 yards from the troop compart-
7 ment.

8 CROSS EXAMINATION

9 BY MR. LEWIS:

10 Q Sir, how cold was it outside your aircraft at the
11 time of the explosive decompression?

12 A How cold was it at the time? I really don't know.
13 It's a function of your altitude. You decrease like two degrees
14 every thousand feet, as I recall.

15 Q Twenty or twenty-five degrees below zero sound about
16 right?

17 A I would say that's approximately right.

18 Q Now, your aircraft had lost an enormous piece of rear
19 portion.

20 A That's correct. Roughly, from what I understand -- I
21 didn't ever see it -- the entire back end or back doors to the
22 aircraft.

23 Q They are pretty big, aren't they?

24 A Yes, they are.

25 Q Somebody said you could drive two tractor trailers

1 out side by side.

2 A I question that. You might be able to get possibly
3 two buses side by side. That would be a tight squeeze. I'm not
4 even sure of that.

5 Q How big is the opening, do you know?

6 A I don't know the dimensions of it.

7 Q How high is the airplane off the ground?

8 A The flight station area is 38 feet, where we were
9 sitting.

10 Q Almost four stories.

11 A Roughly, and the door would be comparable size.

12 Q So, your flight station would be four stories in the
13 air, under normal conditions, with the wheels down; is that
14 right?

15 A That's correct.

16 Q Now, was the air-conditioning -- was the heating in
17 that airplane designed to keep 25 degrees below zero from coming
18 in that large opening?

19 A I couldn't say. I would think that it would be.

20 Q What data do you have to suggest that it would? That's
21 sort of like leaving the barn door open, isn't it?

22 A By the fact that where I was sitting in the cockpit,
23 I felt no appreciable temperature change.

24 Q How many feet were you from the door?

A Approximately 200 feet, I would say, maybe more.

1 Q And you were in -- was your compartment closed?

2 A It was just prior to the RD. It was open after the
3 rapid decompression.

4 Q Prior to that. How was it opened?

5 A We had a -- called a flight station -- little doors
6 like a folding door that closed off the flight station area,
7 and that was --

8 Q From what?

9 A From the cargo compartment. You go from the cargo
10 compartment, upstairs to a big long ladder up to the flight
11 station.

12 Q Now, at some point, you knew you were going to --
13 you were in risk of having a crash, didn't you?

14 A Yes, very soon.

15 Q Did you bring up any of the children that were most
16 at risk in the forward part of the cargo compartment?

17 A No, we did not.

18 Q There was room for them in the quarters up there, wasn't
19 there?

20 A There were a few seats open, yes. We had a few extra
21 crew members in the aft flight deck area.

22 Q Were there beds?

23 A There were bunks. We have what we call two bunk areas
24 in there.

25 Q How many bunks?

1 A Total of six bunks.

2 Q They would have held a lot of small children, wouldn't
3 they?

4 A Well, the bunk areas, at the time, were almost
5 completely filled with crew baggage. We had moved the crew
6 baggage from downstairs into the bunk areas before we on-loaded
7 at Saigon. Because we weren't sure of how many people we had
8 to be on-loaded, so we cleaned up the cargo floor to put what
9 we could downstairs.

10 Q In any event, you didn't substitute the children for
11 the baggage?

12 A No, sir, we did not.

13 Q There were roughly fifteen minutes on the trip back?

14 A As I recall, it was fifteen minutes.

15 Q Now, the children were loaded in the front of the
16 cargo compartment, those that were in the cargo compartment,
17 weren't they?

18 A I really can't say. I took one walk through the
19 cargo compartment after it was loaded. I didn't really look
20 to see how they were loaded. It was more of a walk around for
21 equipment type thing.

22 Q You recognized that there would be a greater risk for
23 people in the cargo compartment than those on the upper deck,
24 from the initial impact, didn't you?

25 A That's true.

1 Q There were doors, the airplane has doors in the front
2 and doors in the back; is that right?

3 A It has what we call a door, it's a door in front. It
4 has two doors in the back.

5 Q And how about the front?

6 A It has a visor door. It's one unit all by itself,
7 rather than opening it separately like the back unit opens
8 separately, there's one door in front.

9 Q One door. But in any event, that would be a potential
10 weak point, if the airplane struck the ground, wouldn't it?

11 A That's true.

12 Q In fact, that's the door that was ripped off the
13 flight deck in the photograph we saw, isn't it?

14 A The visor is.

15 Q The visor.

16 Now, when did the tail break off?

17 A I assume it was on the second impact. That's just my
18 guess from --

19 Q You told us that your estimate was that this airplane
20 hit the ground on the second impact at 2 G's?

21 A Roughly in that area.

22 Q Roughly?

23 A That's what I felt in the cockpit.

24 Q Well, have you ever been in a 2 G landing?

A Yes, sir.

1 Q Did you break the tail off an airplane?

2 A Not that I recall.

3 Q Did you ever break the nose off an airplane?

4 A No.

5 Q Have you ever broken the wing off an airplane?

6 A No.

7 Q Was there any damage to the airplane that you were
8 in that hit the ground at 2 G's?

9 A No.

10 Q Was this an unusually flimsy airplane?

11 A No, not that I know of. I just said 2 G's, simply
12 that the force on my body didn't feel any higher than 2 G's
13 that I have seen.

14 Q Let me make sure I understand it. Your airplane had
15 a machine called MADAR that registers G forces; isn't that
16 right?

17 A That's correct.

18 Q And it hit the ground so hard that it broke the
19 electrical system so that the machine didn't even work; isn't
20 that true?

21 A I don't know that. That's the first I have heard of
22 it.

23 Q You didn't know the radar was broken?

24 A No, I did not, not for the G's.

25 Q Well, did your electrical system go out?

1 A The electrical system did go out, that's correct.

2 Q Did you hit the ground at 2 G's when the electrical
3 system went out of the C5A?

4 A I'm sorry. Say it again.

5 Q The electricity went off, didn't it?

6 A Yes, it did.

7 Q Your previous 2 G landings, did the electrical system
8 go off?

9 A No, they did not.

10 Q That's a difference, too, then in addition to the nose
11 breaking and the tail breaking and the wings breaking off?

12 A Yes.

13 Q Now, are you really telling us, sir, and do you want
14 this Jury to believe that it was only a 2 G landing?

15 A As far as the forces on my body, I still contain that
16 it was somewhere in the 2G neighborhood.

17 Q How do you explain the airplane breaking into so many
18 pieces, like the nose breaking off?

19 A I really don't know. By my own observations, staying
20 in the seat, I did not feel there were that many G's on my
21 body.

22 Q Is it possible that you were stunned?

23 A I don't think so. I was conscious throughout the
24 entire thing.

25 Q How do you know?

A As far as I know, I was.

1 Q You don't know when the tail left the airplane.

2 Q I couldn't see the tail of the airplane.

3 Q Did you feel it come off?

4 A No.

5 Q Did you feel the nose break off?

6 A Not really. All I felt was a sliding sensation.

7 Q Well, something broke the nose off, didn't it?

8 A Either broke off or was ground off.

9 Q Are you saying that the nose was ground off the portion
10 of the plane behind it?

11 A I'm just saying it's a possibility.

12 Q Was the tail ground off, too?

13 A I really don't know.

14 Q How about the wings? Were they ground off?

15 A I would think the wings probably snapped off. I
16 did see something go past the right side of the cockpit before
17 we came to roll. I thought it was part of the wing or wings
18 at that point.

19 Q Just after the initial impact, the wings went by the
20 cockpit; is that right?

21 A After the last impact, right.

22 Q When it was on the other side of the Saigon River?

23 A I saw something go by the window. I can't say for
24 a fact that was the wings or what.

25 Q Might have been the tail.

1 A At the time, I thought it looked like part of the
2 wing.

3 Q All right. But that was at the time -- that was the
4 first part of the second impact; is that correct?

5 A That's correct.

6 Q Now, can you tell me how strong the landing gear are
7 designed. The landing gear, ordinarily, on a 2-G impact would
8 stay in place, wouldn't it?

9 A As far as I know, it would, yes, for 2 G's on the
10 gear, that's correct.

11 Q Now, you have been in a 2-G landing?

12 A That's correct. Not in a C5A airplane.

13 Q But 2 G's are 2 G's, right?

14 A Right.

15 Q Was it a Lockheed product that you were in?

16 A No, it was not.

17 Q What was it?

18 A T-38. I say 2 G's. I don't think it was exactly
19 2 G's, but it was a firm landing.

20 Q Do you have anything in the airplane to monitor the
21 2 G's?

22 A In the C5?

23 Q No, the one you were talking about.

24 A Yes, we had a G meter.

25 Q Did the landing gear break off that airplane?

1 A No, it didn't.

2 Q So, it was completely intact. It just rolled away
3 as though it was a good airplane, right?

4 A Yes.

5 Q Now, this airplane was described by the official
6 investigators as being in four large pieces and ten thousand
7 small; is that an apt description?

8 A I would guess so.

9 Q They were scattered all over the place, little pieces
10 of metal; is that right?

11 A I only know that after looking at the pictures.

12 Q You didn't remember that?

13 A I didn't really survey the entire damage in the
14 area right then. All I remember seeing was the flight station
15 area and the troop compartment and the giant fire ball in the
16 distance. And then later on, after looking at the pictures,
17 I could actually see all the parts laying around.

18 Q Now, you had been told that the MADAR reports G forces
19 and then reports them, ordinarily.

20 A Ordinarily, it does.

21 Q Ordinarily, you wouldn't expect that machine to break
22 down in a 2-G landing, would you?

23 A I really can't say about the reliability of MADAR. It
24 has been known to fail, and I'm not trying to use that as an
25 out, but --

1 Q How about the electrical system, has it been known to
2 fail?

3 A The electrical system is a very reliable system on
4 the aircraft.

5 Q Now, looking at Exhibit 3C, you were in here, right?

6 A That's correct. I was on the right side.

7 Q And you told us that you didn't really realize that
8 you were upside down until after the thing came to rest; is that
9 correct?

10 A I knew we were turning, but I didn't know how much we
11 were turning.

12 Q But you didn't really appreciate that you were in that
13 position, did you?

14 A No, I didn't.

15 Q And you were actually hanging by the straps of your
16 shoulder harness and seat belt, weren't you?

17 A Roughly, I mean I really didn't realize it until I
18 found out that we were upside down. I couldn't feel it on my
19 body. I could not feel the hanging --

20 Q You didn't notice the hanging sensation, but you really
21 were hanging, though, weren't you?

22 A Roughly. I had a lot of wreckage pressing against me,
23 so I really wasn't hanging. I mean, everything was kind of
24 holding me in place at that time. My feet were caught up in
25 the water pedals, the instrument panel in front of me caved
in on me. And so, I wasn't really hanging, as such.

1 Q It would take a lot of force to bash in that cockpit
2 area, wouldn't it?

3 A I would say so. Then again, the airplane is upside
4 down so it's getting squeezed from both sides.

5 Q The doors go here; isn't that right?

6 A The visor door connects --

7 Q Is this the door here?

8 A I believe that's part of the forward ramp area to the
9 visor. Part of the forward ramp and aft ramp.

10 Q So, there's a ramp in here and a door.

11 A That's correct.

12 Q That covers the ramp; is that right?

13 A A door that opens upwards like a big nose that comes
14 up.

15 Q I understand. Now, that's what is missing here,
16 isn't it.

17 A That and a little bit of the ramp and part of the
18 fuselage.

19 Q This area here is the hull or the side, whatever you
20 want to call it, as part of the cargo compartment; isn't it?

21 A I would say it's the side of the cargo compartment.

22 Q This area back here is the side of the cargo compart-
23 ment, isn't it?

24 A That's correct.

25 Q In fact, the cargo compartment comes up to the ramp,

1 completely underneath the deck, doesn't it?

2 A That's correct.

3 Q Because you can drive a truck or tank out of the front
4 of the airplane, just like you can drive it out of the back;
5 isn't that true, with the door open and ramp down?

6 A With aircraft, kneeled and lowered down.

7 Q The point is what is missing here is the door and the
8 ramp; isn't that right?

9 A That's correct.

10 Q Now, this looks like, to me, the floor of the cargo
11 compartment; isn't that what it is?

12 A I really can't tell if it's that or if it's part of
13 the fuselage.

14 Q Would you like to come down and look at it.

15 A All right.

16 (The witness examines the chart).

17 Q Right here.

18 A It's tough to say.

19 Q What is this here?

20 A I believe this is the other part of the ramp, the
21 forward sections.

22 Q This is part of the ramp?

23 A That's correct, as far as I can tell, it is.

24 Q This is the other side of the hull; is that correct,
25 sir?

1 A It looks like it might be.

2 Q Correspondent to the other side of this piece?

3 A That's correct. Possibly the other angle might be
4 able to show it better.

5 Q So, if this is one side and this is the other, then
6 this would be the floor, going back this way, logically, wouldn't
7 it?

8 A What I am saying is it could be part of the hull. You
9 can't really tell if those two are adjoining there. That's all
10 I'm saying. It doesn't look like to me it's big enough to be
11 the actual floor. That's why I didn't think it was the floor
12 of the cargo compartment. It doesn't look high enough.

13 Q Where was your flight deck severed? Where was the
14 break between the part that you were in and the rest of the
15 airplane?

16 A It was just after -- in the section called the F flight
17 deck area. After we have the two group bunk areas, and then
18 the latrine, and we have a galley. And it's just after the
19 galley.

20 Q How far back, in feet?

21 A I would say roughly forty feet, approximately.

22 Q And you don't remember -- you can't give us any help
23 as to when that broke off from the rest of the airplane.

24 A No, I cannot. I did n't -- and again, this is by
25 looking at the pictures -- I did n't go back and physically

1 look at that part of the airplane.

2 Q You didn't realize that that was the situation until
3 you got out of the cockpit, did you?

4 A No, I did not. We have no -- quite honestly, sitting
5 up front in the flight deck area, you have no sensation of
6 anything breaking up. I mean, I didn't know the tail had
7 broken off or anything else.

8 Q And the forces might be completely different at your
9 location than it would be where it broke off and snapped the ai-
10 plane into pieces; isn't that so?

11 A That's true.

12 Q Many times greater.

13 A I can't really say. That's why I was so adamant on
14 my body. I didn't feel that many G's.

15 Q As a professional pilot, though, you know that it
16 takes more than two G's to break an airplane up like that.

17 A That's true.

18 Q It takes many, many G's, doesn't it?

19 A I really can't say how many G's, but I would
20 think so.

21 Q It would take many times 2 G's to break up this huge
22 airplane like this?

23 A That roughly depends on the landing attitude of the
24 aircraft and the impact and the field conditions.

25 Q The landing was a steep angle, and it was an extremely
high speed, wasn't it?

1 A Well, it wasn't a steep angle, it was high speed.

2 Q But it was several times the normal landing speed,
3 wasn't it?

4 A I wouldn't say several times. I'd say maybe a factor
5 of one-half. Probably the second touchdown somewhere in the
6 neighborhood of 210 knots.

7 Q 210 knots?

8 A Yes, depending on the weight, the field conditions,
9 et cetera, anywhere.

10 Q It wasn't 269 knots?

11 A On the first impact.

12 Q Did you gun the motors after the first impact?

13 A Yes.

14 Q You gave full power, didn't you?

15 A Yes, to clear the road.

16 Q And you did clear the path.

17 A We did clear the path.

18 Q And you had full power on that airplane, didn't you?

19 A Right.

20 Q How many horsepower are those engines?

21 A I really can't give it to you in equivalent horse-
22 powers. I can tell you the thrust of each engine.

23 Q What is it?

24 A Roughly 38,000 pounds of thrust per engine.

25 Q It's the biggest engine in the Air Force.

1 A That's correct.

2 Q And the airplane was very lightly loaded, wasn't it?

3 A That's correct. We had approximately 90,000 pounds
4 of fuel and the number of people on board. No cargo.

5 Q So, after the first impact, the airplane was accel-
6 erating, wasn't it, to get across the river. You wanted to
7 make the airport, as a matter of fact.

8 A First it decelerated on the ground. When we got
9 airborne again, we tried to accelerate to one, clear the river
10 and try to keep the nose up for a good landing attitude the
11 second time.

12 MR. LEWIS: Indulge with me just a moment, Your Honor.

13 BY MR. LEWIS:

14 Q Did you cooperate in the Air Force study?

15 MR. DUBUC: Excuse me, Your Honor. I am not sure
16 that that applies to the Air Force study.

17 BY MR. LEWIS:

18 Q Did you cooperate in the Air Force investigation into
19 this accident?

20 A Did I cooperate?

21 Q Yes. People asked you questions.

22 A Yes, that's correct.

23 Q Did you read the collateral report?

24 A I never read it in its entirety, no, sir.

25 Q What parts did you read?

1 A Just different bits and pieces, what they had found
2 out, air speeds, altitudes, roughly things that I, as a pilot,
3 would be interested in. Some of the possible findings of it,
4 things like that.

5 Q Well, there was an air speed increase after the first
6 impact, to 270 knots; isn't that true?

7 A Not to 270, no, not that I am aware of. I do recall
8 just prior to the first touchdown, I glanced at the air speed
9 indicator, and we were doing between 265 and 270. We impacted
10 the ground smoothly, we tried to get it stopped, we got airborne
11 again. The last time I looked at the air speed, it was some-
12 where in climb, and it was shortly thereafter we impacted the
13 second time. And we were in the neighborhood of 220, 210,
14 somewhere in that neighborhood. I don't believe the air speeds
15 increased back up to 270. Probably was increasing. To what
16 point, I don't know what it increased to the second impact.

17 Q What was the high of the air speed? You say in miles
18 an hour, it reached 310 miles an hour, didn't it?

19 A Roughly, for the first impact.

20 Q And did it reach that same high speed at the second
21 impact?

22 A Not that I was aware of, and nothing that I observed
23 would lead me to believe that.

24 Q Now, what direction was the wind when you took off?

25 A As I recall, when we took off, we took off kind of in

1 an easterly direction. And we took off with a tail wind,
2 because we were parked down at that end. So, I would say it's
3 roughly somewhere in a westerly-type direction.

4 Q How many degrees?

5 A I don't recall the exact wind.

6 Q What is your best estimate?

7 A I would say maybe -- I would have to look at the run-
8 ways in Saigon. I can tell you roughly it was a tail wind when
9 we took off.

10 Q What runway did you take off from?

11 A We took off towards the east, whichever one goes to the
12 east.

13 Q Can you tell me what that number would be?

14 A As I recall, it was runway -- seemed like it had 200 or
15 03 at Saigon. I don't remember. 200 and 03 rings a bell.

16 Q And that would have been --

17 A That's been five years ago.

18 Q And that would have been --

19 A It would have been 03. Normally you take off with
20 the wind, but I do recall we took off with a slight tail wind.

21 Q How many knots was the wind at that time?

22 A I don't know.

23 Q Was it fifteen knots?

24 A No, it was less than that.

25 Q You're sure it was not fifteen knots?

1 A As far as I can recall.

2 THE COURT: Did you say 50 or 15?

3 MR. LEWIS: 15.

4 A As far as I can recall, it was less than ten knots,
5 but I really can't be exact.

6 Q Now, Exhibit No. 2 is the engineering analysis and
7 data which has been submitted into evidence. It says the winds
8 were 15 knots. Would you disagree with that?

9 A I can't disagree or agree with that.

10 Q Now, sir, this Exhibit 2DD has indications that it
11 has portions of the cargo section, doesn't it?

12 A It's the top of the cargo section and what there are
13 to the size of it. That's what those big pieces sticking up
14 are.

15 Q This is?

16 A That's correct. That's kind of the -- that's the
17 bottom of the flight station area, the top of the cargo
18 compartment. Those are hydraulic lines that run to the aft
19 sections.

20 Q These are rollers that would have been in the cargo
21 section right underneath it?

22 A I would guess so.

23 Q The aft portion of the flight deck.

24 A Well, probably where you're pointing there by the
25 roller would be after the flight deck.

1 Q This would be after the flight deck?

2 A Just a little bit after the flight station area.

3 Q Okay. But this is definitely cargo here, isn't it?

4 A That's correct.

5 Q You can tell by these rollers, can't you?

6 A Well, that and it looks like the bottom of the flight
7 station area, so it's got to be the cargo compartment, or
8 what's left of it.

9 Q And the cargo compartment to the rear of the flight
10 deck, right?

11 A To the rear the other direction.

12 Q Flight deck this way, right?

13 A No, the flight deck is to your left. That is the
14 nose of the aircraft.

15 Q Nose would be this way?

16 A Correct. And the flight station right after your
17 left hand there, and the cargo compartment runs after that,
18 from your left to your right.

19 That's correct.

20 Q Now, three or four seconds prior to impact, what did
21 you say the air speed was?

22 A The first impact again?

23 Q The second impact.

24 A I would say somewhere in the neighborhood of 210 to 220
25 It was in that neighborhood the last time I looked at it, and

1 that was in the airborne phase, clearing the river. Now, as
2 far as the time before impact, I can't be exact. Somewhere
3 around 210 to 220.

4 Q Three to four seconds prior to impact, what was the
5 air speed, from your observation?

6 A I would guess around 220 for the second impact.

7 Q Let me read you from Exhibit 2, and ask you whether
8 this is an accurate statement.

9 MR. DUBUC: This is D2?

10 MR. LEWIS: Yes, D2, on the second page.

11 BY MR. LEWIS:

12 Q "The MADAR data"--

13 MR. DUBUC: Excuse me, Your Honor. If he's going to
14 ask him about this, I guess he should be asked if he saw it or
15 knows something about it.

16 MR. LEWIS: It's in evidence. It talks about --

17 THE COURT: This gentleman is a party to the Air
18 Force, along with the authors of this document. He's charged
19 with the responsibility.

20 MR. DUBUC: Responsible for particular portions of it.

21 THE COURT: He can be cross examined about anything
22 the Air Force said in this case.

23 BY MR. LEWIS:

24 Q "The MADAR data for a period of" -- I'm reading from
25 Exhibit D2 --

MR. DUBUC: Could we have the page number?

1 MR. LEWIS: Yes, sir. Second page of the heading,
2 "Engineering Analysis of Data From AF 68218". Just above the
3 section called, "Visual Observations". It looks like it has
4 a page 1, but -- it may be page 1. It's hard to say.

5 BY MR. LEWIS:

6 Q "The MADAR data for a period of 3.6 seconds prior to
7 initial impact was lost due to power interruption at impact.
8 Data stored in a MADAR buffer was not recorded due to this
9 power loss. At this point, 3.6 seconds prior to impact, air
10 speed was approximately 270 knots and the altitude trend
11 information available indicates a probable sink rate at initial
12 touchdown on the order of 16 feet per second. However, it must
13 be emphasized that no data exists for approximately 3.6 seconds
14 prior to touchdown and ground effects should have produced a
15 reduction in sink rate." Do you agree with that?

16 A You said something about initial impact. Which impact
17 are you talking about?

18 Q Yes, I am just giving you the pieces.

19 A Initial impact, 270 knots, yes. Because I glanced
20 at that just prior to initial impact.

21 Q Going down, "The last record following the MADAR
22 interruption at or shortly after impact, the system cycled back
23 on and provided an additional 2.28 seconds of data prior to
24 complete loss of MADAR information. Very little information
25 can be deduced from the final data group, except to note again

1 the three to five CPS structural response indications." What
2 does that mean?

3 A I am not really sure.

4 Q Three to five CPS structural response.

5 A Cycles per second.

6 Q "Appearing in a vertical, lateral, and pitched
7 acceleration data channels. The last reported moch number was
8 0.41, which converts to an air speed of 270 knots."

9 A Which was from the initial impact.

10 Q It says this is at the time of the second impact.

11 MR. DUBUC: Objection. It does not state that. It
12 says it was lost and he just read it and he's mischaracterizing
13 what he's reading from.

14 THE COURT: If Mr. Dubuc is correct, I ask you to
15 disregard this portion of the testimony.

16 MR. LEWIS: If it please the Court, the comments that
17 Lockheed and the Government have always made --

18 THE COURT: I don't want to hear about the argument.
19 I want to hear what this paper says. That's what we are talking
20 about.

21 MR. LEWIS: Do you want me to read it again, sir?

22 THE COURT: Please.

23 BY MR. LEWIS:

24 Q "Following the MADAR power interruption, at or shortly
25 after impact, the system cycled back on and provided an addition

1 2.28 seconds of data, prior to complete loss of MADAR infor-
2 mation. Very little information can be deduced from this
3 final data group except to note again the three to five cycles
4 per second, CPS structural response indications appearing in
5 the vertical, lateral and pitch acceleration data channels.
6 The last recorded mach number was 0.41, which converts to an
7 air speed of 270 knots."

8 MR. DUBUC: I think perhaps the basis of my objection
9 is that next sentence which is not read.

10 MR. LEWIS: I'd be happy to read it. "No data exists
11 by which to derive air flying load factors or accelerations
12 during either the first or second impact."

13 THE COURT: All right. We have come to a stopping
14 place here. We will have our afternoon break now. We will
15 reconvene at 25 of 4.

16 (Whereupon, the Jury left the courtroom.)

17 THE COURT: Let's talk about this during the recess.
18 The two seconds is probably the time on the ground in the first
19 impact.

20 MR. LEWIS: Right.

21 THE COURT: It rose into the air. End of two seconds,
22 as it left the ground after the impact, it probably was going
23 faster than that when it landed the second time.

24 MR. LEWIS: Yes, it could easily be, but it wasn't
25 any less than that.

1 THE COURT: I don't think I remember in the previous
2 incarnation learning that there was power used between
3 the first and second impact. Was that testified to?

4 MR. DUBUC: Yes, I think Captain Harp did.

5 THE WITNESS: I think I did.

6 THE COURT: You told us you put power on -- you were
7 controlling the power.

8 THE WITNESS: We were both controlling the power
9 and the ailerons. We brought the power back for the first
10 impact, and it looked like a fairly good landing.

11 THE COURT: Another thing you said that I hadn't
12 caught before, you said something about the attitude of the
13 nose on the second impact.

14 THE WITNESS: It was slightly nose low.

15 THE COURT: Give me the correct landing attitude.

16 THE WITNESS: The normal landing attitude is like
17 this (indicating).

18 THE COURT: And this one was --

19 THE WITNESS: This one was either nose slightly low
20 or level. In other words, lower than a normal landing.

21 THE COURT: All right.

22 (Whereupon, court was recessed until 3:35 p.m.)

1 THE COURT: Bring back the jury.

2 Would you mention to me tomorrow morning, so that
3 I make sure I'm listed -- show Mr. Dubuc or Mr. Lewis, the
4 both of you, where the testimony -- I'm not talking about the
5 exhibits -- where the testimony is about the application
6 of power after the first impact. It is in my notes.

7 MR. LEWIS: I don't remember it being --

8 THE COURT: I don't need it now. I'm just curious.
9 Please don't interrupt now -- and the attitude of the nose
10 on the second impact.

11 MR. LEWIS: I don't recall either one of them
12 being in the earlier trials.

13 THE COURT: Something else you wanted to say,
14 either one of you?

15 MR. LEWIS: I just wanted to understand what latitude
16 I had in this regard, because you were instructing me, in
17 effect, when the jury left, and I wanted to make sure that I
18 wasn't off-base. We were reading -- I was asking about the
19 air speed, and wasn't it an effect of it accelerating, and
20 didn't it --

21 THE COURT: Well, it seems to me that, as I sense
22 the evidence, I don't know whether I need to do anything
23 about it. As I sense the evidence, the MADAR reading of
24 about mach 41, .41, maybe -- is the last word MADAR?

25 MR. LEWIS: Yes, sir.

1 THE COURT: And that that word was uttered by the
2 MADAR before the second acceleration.

3 MR. LEWIS: Yes, that's probably true.

4 MR. DUBUC: Your Honor, maybe --

5 THE COURT: Let's get this straight. We can get
6 awfully messed up.

7 MR. DUBUC: In the first testimony by Captain
8 Harp, on page 2142, he testified in answer to a question
9 about the first touchdown, "The airspeed just prior to touch-
10 down was something in excess of 260 knots, as I recall --
11 265 or 270, something in that area." And you said -- the
12 Court said, "I can't hear you." "Something between 265 and
13 270, something in that area. We were on the ground for a
14 short time, say, maybe, a couple of thousand feet. We were
15 trying to get the aircraft to stop. I do remember trying
16 to get on the brakes to see if we could bring the aircraft
17 to a complete stop.

18 "About that time, I noticed that we were back
19 in the air, physically, flying again. I remember seeing
20 the bend of the Saigon River coming into view, and basically
21 we were heading for the middle of the river, at which time
22 we reapplied full power, trying to clear the river, which we
23 did, and just barely landed on the other side of the river."

24 THE COURT: This went right by me. I heard that
25 the thing went back up in the air, and tuned out.

1 MR. DUBUC: And on the MADAR, there are two discus-
2 sions of the MADAR, that was just read from Exhibit D-2.
3 One of the discussions --

4 MR. LEWIS: I would appreciate it -- not in front
5 of the witness, if it's something we haven't covered.

6 MR. DUBUC: Well, I'm going to get to that in just
7 a second.

8 THE COURT: Why don't we excuse the Captain? Just
9 step out the back door there, Captain, and go away from the
10 jury -- just keep going around the corner.

11 (The witness was temporarily excused.)

12 MR. DUBUC: "The MADAR data, for a period of 3.6
13 seconds prior to initial impact, was lost due to power
14 interruption on impact. This 3.6 seconds prior to impact,
15 when the airspeed was approximately 270 knots, and the
16 altitude information available indicates a probable sink
17 rate at touchdown of 16 feet per second.

18 "However, it must be emphasized no data exists
19 for approximately 3.6 seconds prior to touchdown on
20 ground effect, which should have produced a reduction in
21 sink rate prior to ground contact. The analysis of the
22 landing gear, dropped test data as to that.

23 "Following the MADAR interruption, or shortly
24 after impact, the system cycled back on, and provided an
25 additional 2.28 seconds of data, prior to complete loss of

1 MADAR. Very little information can be deduced from this
2 final data group, except to note, again, the three to five
3 cycles per second structural response indication, appearing
4 in the vertical and" --

5 THE REPORTER: Excuse me, repeat that last part?

6 MR. DUBUC: "Pitch acceleration data channels.

7 The last recorded mach number was 041 -- .041, which converts
8 to an air speed of 270 knots."

9 THE COURT: Where do you think the plane was the
10 last time it registered .041?

11 MR. LEWIS: We have something here that --

12 MR. DUBUC: Somewhere between the first and the second
13 impact.

14 THE COURT: Was it in the air?

15 MR. LEWIS: Oh, yes.

16 THE COURT: So that establishes that the second
17 impact was also 270?

18 MR. DUBUC: It doesn't establish that. It estab-
19 lishes it was something close to that. I don't know. This
20 is the data --

21 THE COURT: Well, it's not going to slow down very
22 much.

23 MR. DUBUC: This is the data from the report.

24 THE COURT: The point is that it might speed up in
25 midair, at full power on. It's not going to slow up much

1 below 270 before impact.

2 MR. DUBUC: I don't think -- I personally don't
3 think it would.

4 THE COURT: Then why are you quarrelling, Mr. --

5 MR. DUBUC: Oh, no, my only objection, Your Honor
6 -- when I made an objection on this, he was asking this wit-
7 ness questions about a report he was neither showing the
8 witness, nor the witness had had an opportunity to review.
9 And that was the basis of my objection. If he wants him to
10 testify from some of this, I think he should see it, and I
11 realize he's in the Air Force, but he's not a managing agent
12 of the Air Force, nor was he on the --

13 THE COURT: He was the managing agent of that air-
14 plane. He was driving that airplane.

15 MR. DUBUC: That's true, Your Honor, but as far as
16 what is in an engineering document prepared by somebody
17 else --

18 THE COURT: Therefore, he must have been a party
19 to the development of that data. It's inconceivable that
20 they didn't question the pilot.

21 MR. DUBUC: Well, this is the engineering analysis,
22 as opposed to the flight analysis, which is another exhibit,
23 in which the pilots had statements on it, but --

24 THE COURT: Is there some way, without a lot more
25 palaver, we can let the jury understand that -- if I understand

1 you, that at the time immediately before second impact, the
2 air speed was not less than 270?

3 MR. DUBUC: He was in the area of 270, but I don't
4 say we're saying it's --

5 THE COURT: He had it down to 220.

6 MR. DUBUC: That was his recollection. That's all
7 that is.

8 MR. LEWIS: I have a right to question.

9 THE COURT: And he couldn't have recalled it from
10 anything -- and this sort of impeaches that recollection.

11 MR. DUBUC: On the air speed?

12 THE COURT: What's your suggestion, Mr. Dubuc? I
13 don't want problems about this. I just don't want to confuse
14 the jury.

15 MR. DUBUC: I suggest you show him this, and find
16 out if he agrees or disagrees with it, and ask him if he has
17 seen it, and so on. That's all.

18 THE COURT: I'd like the picture to come out,
19 without a lot of disputing, that this plane was going at
20 least 270 knots.

21 MR. LEWIS: May I show you -- before the jury comes
22 back, may I show you Appendix E, if it please the Court?
23 I think, if I could -- and if you will look at that, Your
24 Honor, it shows that --

25 THE COURT: Who prepared this?

1 MR. LEWIS: Lockheed, and it shows, if it please
2 the Court, that after the first impact, it shows you how long
3 the MADAR was operating, and it's roughly in the middle of
4 the trajectory there. That would be where the reading was.
5 The last -- the MADAR makes what amounts to continuous
6 readings, for every -- in a plotted series of readings, and
7 the last reading --

8 THE COURT: Mr. Dubuc, do you object to this being
9 in evidence?

10 MR. DUBUC: Well, it's not a marked document, but
11 I don't really have a particular objection to it in evidence.

12 THE COURT: Why don't you offer it at the proper
13 time? Use it now for identifying it.

14 MR. DUBUC: Yes, I think -- I would suggest, Your
15 Honor -- I am sure this witness hasn't seen this document.
16 There is a witness who can testify about this document, who
17 is going to be here, and I think if you're going to offer
18 this particular document, either he's going to know about it
19 or not going to know about it. Yesterday, we went through
20 the --

21 THE COURT: Let's let him get out of here, with
22 the 220 statement corrected.

23 MR. LEWIS: Yes, sir.

24 THE COURT: Let's see if you can get across that,
25 by showing him not that document but the report, that there

1 may be some doubt about his 220 estimate, and then Mr. Dubuc
2 will have a witness who will clarify it.

3 MR. LEWIS: I'll ask it orally.

4 THE COURT: Bring back the jury and the witness.

5 (The jury and the witness reentered the room, and
6 the witness resumed the stand.)

7 CROSS EXAMINATION

8 BY MR. LEWIS:

9 Q Now, Captain, going over the airspeed of the air-
10 plane at the time it struck the ground a second time, the
11 nose was down in an incorrect landing position; isn't that
12 correct?

13 A Yes, sir. When I say that the nose was down, by
14 that I mean relative to the normal landing attitude. I
15 don't recall it being excessively -- it was just lower than
16 normal.

17 Q It was dangerously low, wasn't it?

18 A I don't know that I would say dangerously or not.
19 It doesn't stick out in my mind as being that low.

20 Q Now, after you left the grounds, on the first
21 impact, at some point about midway between the first impact
22 and the second impact, the airplane was -- had full throttle,
23 isn't that true?

24 A That's correct.

25 Q And at the time you put the full throttle on, the

1 airplane was traveling at approximately 310 statute miles an
2 hour, isn't that true?

3 A I wasn't --

4 Q Or 270 knots?

5 A I'd have to disagree with that. Based upon the
6 observations that I saw -- the only time I looked at the air-
7 speed indicator was just prior to the first impact, and it
8 was almost 270. I did see between 210 and 220, and exactly
9 where that was, I couldn't tell you.

10 What I'm saying is, I don't -- can't believe that the
11 C5 would slow down to that airspeed, and accelerate back up
12 to 270 knots in this short time.

13 Q You don't have any recollection of seeing the speed
14 of the airplane after that first observation, do you?

15 A There was a -- yes, I did look at the airspeed
16 somewhere in there. I can't -- I don't recall if it was as
17 we were trying to get it stopped, or when we got airborne
18 again. But I looked down, and it was around 210 or 220. I
19 didn't look at it at the end.

20 Q I understand that, but then the airplane began
21 to pick up speed, didn't it?

22 A It was slowly accelerating. The C5 was not what
23 you call a rapidly accelerating aircraft.

24 Q The last MADAR observation, according to the Air
25 Force records -- was it a period after the airplane had

1 left the ground, on the first impact, and it shows that
2 the airplane, at that point, had regained a speed of 270 knots
3 or so. And do you dispute that?

4 A. I don't really dispute it. What I'm saying is, the
5 way I heard this, and this is the first time I've happened to
6 hear this read, it sounds like to me it's saying it was
7 a momentary power interruption there, kind of like a hiccup,
8 and that was the last signal the MADAR received, was 270,
9 and it stayed with that signal.

10 Q. There were two power interruptions.

11 A. Right. But there was one -- what I'm saying, if
12 I heard it correctly, is there was one after the first
13 impact at 270, there was a power interruption, and then it
14 says I'm doing 270 again, and I've just got to believe, in
15 my own mind, it's like a hiccup, and you pick up the last
16 signal, which is 270.

17 Q. What do you mean, a hiccup?

18 A. Like, a power interruption, it's like a signal is
19 there, and all of a sudden it's blocked, and it goes back.

20 Q. Are you telling me that you knew it went back?

21 A. I'm just saying it's conjecture on my part.

22 MR. LEWIS: May I ask that it be stricken, Your
23 Honor? There is no scientific basis for that.

24 THE COURT: Ladies and gentlemen, do you understand
25 that the Captain was just guessing, and if there is better

1 data, you will hear it.

2 Are you about finished?

3 MR. LEWIS: Yes. I have just a couple more -- I
4 thought you meant this line, Your Honor.

5 BY MR. LEWIS:

6 Q Sir, the second impact was extremely rough, isn't
7 that true?

8 A That is correct.

9 Q And you lost all power at that time?

10 A That is correct. As far as in the cockpit, we lost
11 all electrical power.

12 Q Now, in fact, after the -- when you got out of
13 the airplane, you were groggy -- no, that may not be the right
14 word, and you were hyperventilating? In fact, you were
15 very fuzzy-headed, isn't that right?

16 A I was hyperventilating, yes, sir.

17 Q Well, that's an emotional condition, isn't it?

18 A To some degree. I think the emotional thing
19 brought it on.

20 Q Now, you were in a state of shock, isn't that true?

21 A I used that terminology in my deposition. What I
22 was trying to describe was my emotional feeling when I saw
23 the troop compartment, or what I thought was the troop
24 compartment, engulfed in flames. And it was a very emotionally
25 depressing thing to see what you thought was all the people

1 on board -- as far as being physical, or medical -- since I
2 really didn't mean it in that connotation.

3 Q Then you were in a state of shock when you sat
4 down and began hyperventilating, isn't that --

5 A I know I was hyperventilating. I could actually
6 hear myself breathe very quickly -- very rapidly, and I
7 sensed that I was hyperventilating, and I sat down and took
8 a few deep breaths and --

9 Q Don't you know that that's an emotional reaction
10 to shock?

11 A That could be. I don't know that for a fact.

12 MR. LEWIS: That concludes my examination, Your
13 Honor.

14 (Pause.)

15 MR. LEWIS: Oh, I'm sorry, Your Honor. I've for-
16 gotten one question, if I may. I apologize, Mr. Dubuc.

17 BY MR. LEWIS:

18 Q Sir, it took an hour and a half to complete the
19 air evacuation of the people from the scene, did it not?

20 A You mean after the crash?

21 Q Yes, sir.

22 A I'm not really aware of that. I would -- like I
23 said, I left somewhere during the evacuation. I was taken
24 to the first aid station, was cleaned up and bussed to the
25 hospital, and by the time I got to the hospital, the

1 evacuation was complete.

2 Q You did read the collateral report, didn't you?

3 A An hour and a half -- yes, I have heard an hour and
4 a half. I don't know that.

5 Q May I show you this paragraph 25 in the collateral
6 report? Just read that sentence out loud.

7 A "The helicopter rescue operation was completed in
8 one and one-half hours."

9 Q Thank you very much.

10 MR. LEWIS: That's all the questions that I have,
11 and thank you, Your Honor, for your courtesy.

12 REDIRECT EXAMINATION

13 BY MR. DUBUC:

14 Q Now, Captain, you were asked something about gee
15 forces, where you were sitting in the cockpit -- do you remem-
16 ber that?

17 A Yes, sir.

18 Q And in your experience, can the gee forces that are
19 experienced in a landing differ, depending upon what section
20 or area of the airplane you are in?

21 A Most definitely. That's what I was trying to get
22 across there. We were so high in the airplane -- on my body,
23 I didn't feel any unusual gee forces, but I'm not, in any
24 means, trying to say that was the gee forces on the air-
25 craft itself -- I'm just saying on my body.

1 Q Are you saying, or would it be -- are you saying the
2 gee forces might be different, for example, in the cargo
3 compartment, in the bottom of the airplane, than they were
4 where you were sitting, up on top, in the cockpit?

5 A As a matter of fact, they probably would be dif-
6 ferent. They would be a little bit higher -- should be higher.

7 Q And if the gee forces were higher, then there
8 could be different amounts of damages, is that correct?

9 A That's correct.

10 Q Now, you were asked some questions about the picture
11 -- I think it was Plaintiff's Exhibit 27. Did you see any-
12 thing in that -- and that's the exhibit where the cockpit
13 was turned over. Do you remember the one we just exhibited
14 to the jury?

15 A From the top side or the bottom side?

16 Q From the bottom side, where you were looking into
17 the bottom of the cockpit area.

18 A Okay.

19 Q Now, did I understand you -- this is 3-C --

20 MR. LEWIS: Counsel is leading his own witness.

21 MR. DUBUC: I'm just trying to --

22 THE COURT: That is overruled.

23 BY MR. DUBUC:

24 Q Did I understand you to say that there was not
25 enough space between what you saw at the bottom of the cockpit

1 floor, to the other pieces that were attached to constitute
2 the entire cargo compartment which would have been underneath
3 the cockpit?

4 A. That's what it looked like to me. It looked like
5 it was not long enough for it to be the top of the cargo
6 in the bottom. It looked more like another piece of metal
7 folded over.

8 Q And are you familiar with what is called assembly
9 seams, or assembly components for different portions of the
10 airplane?

11 MR. LEWIS: Objection, Your Honor.

12 THE COURT: Beyond the cross. The objection is sus-
13 tained.

14 MR. DUBUC: This goes to the question of what
15 he asked him about the differences in the distances between
16 the bottom of the cockpit, Your Honor, and the bottom of
17 the cockpit floor, and he already indicated one difference,
18 and I'm asking him if he is familiar with an assembly seam
19 component.

20 THE COURT: How is that going to relate to this?

21 MR. DUBUC: I'm offering the question to indicate
22 that the airplane, as far as the cockpit is concerned, did
23 not separate at the assembly seams. And that's what we've
24 been looking at, at that picture.

25 THE COURT: Objection sustained.

1 BY MR. DUBUC:

2 Q You were asked another question about the wind, and
3 I don't believe you had seen this document that you were asked
4 about. I'm going to show you Exhibit D-2. It's an engineering
5 analysis.

6 Mr. Lewis asked you about the wind on the runway.
7 Do you recall those questions?

8 A Yes, I do.

9 Q Would you look at the third paragraph, last sen-
10 tence, of Exhibit D-2?

11 A "The takeoff was" --

12 Q Well, just take a look at it. Does that refresh
13 your recollection as to runway and wind direction?

14 A Yes. I couldn't remember the exact runway direc-
15 tion. I know it was an easterly runway, and had a slight --

16 Q And which runway was it?

17 A Runway 07.

18 Q And which direction was the wind?

19 A 120.

20 Q All right, and would that be a wind blowing from
21 southeast to northwest?

22 A It would be a wind from the southeast to northwest,
23 that's correct.

24 Q And you were asked a question about hyperventilating
25 at the end, and you specifically remember that you were doing

1 that, and sat down for a few minutes?

2 A Yes, I did.

3 Q And after you sat down and rested for a minute,
4 did you realize that what you had been looking at was not the
5 troop compartment burning?

6 A I did not realize it until someone notified us that
7 they were over here, or they're alive -- that's when I actually
8 looked over to my left and saw the troop compartment.

9 Q And following that realization, as far as your
10 recollection is concerned, did you experience any further
11 shock or any problems with respect to what you observed, or
12 what you did?

13 A Not that I am aware of.

14 Q Okay, thank you very much.

15 THE COURT: Any recross?

16 MR. LEWIS: One question, sir.

17 RECROSS EXAMINATION

18 BY MR. LEWIS:

19 Q Captain, you're not suggesting by your testimony
20 that this really wasn't an extremely violent aircraft acci-
21 dent, are you?

22 A I guess what I'm trying to say, sir, is that my
23 position -- and from what I saw outside, I thought it could
24 be a lot worse. And on my body, it didn't seem that violent,
25 okay?

1 Q But as a pilot looking at the wreckage, the casual-
2 ties and things like that, it was an extremely violent air-
3 craft accident, wasn't it?

4 A Well, in that context, yes. But it could have been
5 a lot worse, I guess. You have to temper that with that state-
6 ment.

7 Q Thank you.

8 MR. DUBUC: I have no further questions.

9 THE COURT: Thank you, Captain, you are excused.

10 (The witness was excused.)

11 THE COURT: Your next witness, please?

12 MR. LEWIS: Your Honor, may I call Dr. Reff?

13 THE COURT: Ladies and gentlemen, in order to
14 accommodate scheduling of people, although the Plaintiff has
15 finished his case generally, there was one witness for the
16 Plaintiff who wasn't here at the time, and is here now.
17 Don't be confused if you now hear a witness not for the Defen-
18 dant, but for the Plaintiff.

19 Whereupon,

20 RICHARD BRIAN REFF

21 was called as a witness and, after being first duly sworn, was
22 examined and testified as follows:

23 DIRECT EXAMINATION

24 BY MR. LEWIS:

25 Q Would you state your full name, please, sir?