

UNITED STATES OF AMERICA

NATIONAL TRANSPORTATION SAFETY BOARD

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In the matter of the Investigation : of
EMERY WORLDWIDE AIRLINES, Flight 17 :
McDonnell Douglas DC-8-71F      :

N8079U                            :
Rancho Cordova,                   :
California                         : Docket No.:
                                   :   SA-521
February 16, 2000                 :
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National Transportation Safety Board  
Board Room and Conference Center 429  
L'Enfant Plaza, S.W. Washington, DC 20024

Friday, May 10, 2002

The above captioned matter convened, pursuant  
to adjournment at 8:04 a.m.

BEFORE:  
FRANK HILLDRUP,  
Hearing Officer

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(301) 565-0064

APPEARANCES:

On behalf of the NTSB:

JOHN GOGLIA, CHAIRMAN  
JOHN DeLISI

ALAN KUSHNER

NTSB Technical Panel:

KEN EGGE

FRANK MCGILL

STEVE CARBONE

KEVIN PUDWILL  
On Behalf of the FAA:

LYLE STREETER

Other Participants:

RICHARD HAGQUIST  
BRUCE ROBBINS

Emery Worldwide Airlines

RICHARD BREUHAUS  
The Boeing Company

TODD GUNTHER  
Airline Pilots Association

DAVID HOFFSTETTER  
SAM PORTER  
RON ALVARADO

Tennessee Technical Services

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1 P R O C E E D I N G S

2 8:04 a.m.

3 CHAIRMAN GOGLIA: We will reconvene this morning  
4 and we left I believe with the tech men concluding their

5 questions, is there any change in that?

6 HEARING OFFICER HILLDRUP: Well, sir, I had a  
7 question or two for Mr. Hoffstetter.

8 Whereupon,

9 DAVID HOFFSTETTER

10 was called as a witness, and having been previously sworn,  
11 was examined and testified further as follows:

12 DIRECT EXAMINATION

13 BY HEARING OFFICER HILLDRUP:

14 Q I can't find my notes right now, but basically it

15 involved the statements you made yesterday about two things.

16 One was the apparent or the comments you heard from, I

17 believe one of your mechanics, about Emery rerigging after  
18 airplanes perhaps coming out of TTS or rerigging to a

19 Douglas spec versus a United spec. Could you review that

20 again briefly and what I'd like to do if -- tell me how you

21 came about with that knowledge, and I'd like to ask for the



22 record of the folks that you -- that told you that  
23 information as well. Provide that for the record after the  
24 hearing, I'm not worried about it right now.

25 A Okay. The -- about a year ago we had a team of

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1 mechanics working for Emery at Dayton. We had a crew, a  
2 supervisor, some A&P mechanics, a couple avionics people,  
3 and there was a rig problem on one of the aircraft that was  
4 at the Dayton hub. Some of the mechanics from Emery were  
  
5 working on that particular problem and one of them made the  
6 statement to one of my mechanics that they have to rerig  
7 everything that comes out of the Tennessee tech. He was one  
8 of the people who is on our rig crew and took exception to  
9 the comment. Called me up and explained to me that what it  
10 appeared they were doing was taking an aircraft that was not  
11 a ex-United airplane, and rerigging it to a Douglas -- the  
  
12 original Douglas spec.  
  
13 United changed the rigging on the ailerons and  
14 the tabs to rig the tabs on the ailerons to a neutral  
15 position. I believe Douglas originally rigs those ailerons  
16 to four degree trailing edge down. I'm not real sure about  
17 the number, but there is a difference. United did this  
18 improve fuel efficiency, and we have a job card that's  
  
19 provided by Emery in their D check package that tells us to  
20 rig their entire fleet to the United specification as it  
21 relates to ailerons.

22                   When he pointed that out to mechanics that were  
23 working on the problem at Dayton, and they said that's not  
24 the way we do it here. We rig to the Douglas spec.  
25 That's -- we're charged with working to the manual that's

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1 appropriate to the aircraft.

2 He called me in. I pulled a copy of the job card  
3 that tells us to rig to the United dimensions, faxed that up  
4 Emery's maintenance control and to the people -- it went

5 from there to the people who were doing maintenance at  
6 Dayton -- their line crew at Dayton. They went ahead and  
7 rigged to the Douglas spec, which is what they are charged  
8 with doing under their maintenance manual.

9 The aircraft departed, went on a flight, came  
10 back the following evening. It still had trim problems and  
11 it was turned over to the TTS crew that was on station at

12 Dayton, and that' when they discovered the missing cotter  
13 keys, broken safeties and loose jam nuts.

14 Q Did you personally talk to Emery maintenance  
15 control about this?

16 A I sent the fax on the D check. I -- their  
17 quality control was there when the panel was opened and was  
18 aware of the missing safeties and loose jam nuts. I didn't

19 find out about for a day or two after the -- after that  
20 particular problem. I was aware of the United versus  
21 Douglas problem as it was happening and provided the job

22 card from TTS that we used during their heavy checks.

23 Q Okay, but you didn't speak to maintenance control  
24 personally? Emery maintenance control about --

25 A This issue?

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1 Q Yes.

2 A No.

3 Q Okay, well, that's really my only question. I  
4 would like to have for the record, the folks that you're

5 aware of that were involved with that, and again, I can get  
6 that after the hearing.

7 A Well, the gentleman involved from TTS's  
8 standpoint is here. His name's Ron Alvarado.

9 Q Okay. I'd like any TTS and Emery folks -- you  
10 can just provide that to me afterwards. Thank you.

11 A Thank you.

12 HEARING OFFICER HILLDRUP: That's all I have, Mr.  
13 Chairman.

14 CHAIRMAN GOGLIA: Okay, to the parties. We'll  
15 start with ALPA today. Surprised?

16 MR. GUNTHER: Never surprised.

17 DIRECT EXAMINATION  
18 BY MR. GUNTHER:

19 Q Mr. Hoffstetter, just one question. Fleet  
20 campaign directive for the bolt, did your company at any  
21 time participate with any Emery aircraft with that?

22 A Yes, we did. We had some problem with the fleet

23 campaign.

24 Q Could you describe those?

25 A The last aircraft we did for Emery, we were asked

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1 -- and I can't remember the tail number on that airplane --  
2 when the fleet campaign was issued by Emery, they list  
3 materials. I have a copy of the fleet campaign. I'm ont  
4 sure what Exhibit this is, but I know it is in the Exhibit  
  
5 List, and the materials -- it says "make sure these parts  
6 are on hand when performing this FCD. If the installation  
7 is incorrect and the parts are not available, then the  
8 aircraft is out of compliance". And it specifically calls  
9 for an NAS460-to-4 P5 L14 bolt. That is not the bolt that  
10 was installed. The bolt that was installed was an NAS1252  
11 dash 50 dash 516, which I believe actually is a stronger  
  
12 bolt, but the fleet campaign is very specific about what  
13 they want, direction of installation and the part number of  
14 bolt.

15           We called to advise them that the incorrect  
16 number per the FCD was installed and their response was --  
17 it's a better bolt, don't worry about it, just put it back  
18 together and let it go. We had the 464 bolt in stock and  
  
19 put the aircraft in compliance with the FCD before it  
20 departed but there was -- I think we had to go out and buy  
21 the bolt. There was a little debate over what they really



22 wanted to have done and you know, I can see the same thing  
23 happening. If it happens with me and I've got lots of time  
24 to solve the problem, the airplane's going to be there for a  
25 few days or weeks -- or sometimes months -- I can imagine

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1 the problems that the people on the line have with the same  
2 issues.

3 Q Did you ever receive any results from Emery in  
4 results to the fleet campaign directive as to what they

5 found with their fleet?

6 A We were a late party to the investigation. I  
7 have never seen results from the FCD. I have never seen log  
8 pages from the time the aircraft left Tennessee until the  
9 incident. The only records that I have have been shown on  
10 log pages involved with the dampers and the B-checks. I  
11 have no idea what other maintenance was accomplished on the  
12 aircraft.

13 MR. GUNTHER: Thank you very much. No further  
14 questions.

15 CHAIRMAN GOGLIA: And ... the Boeing Company.

16 DIRECT EXAMINATION

17 BY MR. BREUHAUS:

18 Q Yes, good morning, Mr. Hoffstetter. Yesterday

19 you were discussing TTS' involvement in B-checks. Just a  
20 couple questions in that area. How often is a B-check  
21 normally performed?

22           A     I believe they were 90-day checks, if they're  
23     doing the full-blown inspection.  There's an hour and a time  
24     requirement, whichever comes first.

25           Q     And you would perform B-checks on the Emery

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1       airplanes?

2               A     Yes.

3               Q     And you mentioned full-blown.  Do you mean the  
4       entire B-check?

5               A     Right now they do a segmented B-check which is B-  
6       1, B-2, B-3, and B-4.  They do a portion of the inspection.  
7       One engine is heavy, they do all the filters, and the next  
8       segmented B-check, they'll do another engine in a different  
9       portion, so at the end of the second time period, all the  
10      same items have been looked at.  When we were doing it, it  
11      was a complete -- the complete B-check program at one time.

12              Q     So just to make sure I'm clear on that.  When TTS  
13      did it, you did complete B-checks for -- on the Emery  
14      airplanes.

15             A     Yes.

16             Q     When the B-checks were broken into parts or  
17      segments, those segmented parts were done by Emery?

18             A     That's correct.

19             Q     And who did the last B-check on the accident  
20      airplane?

21             A     Emery did three B-checks after it departed.

22           Q     Are you familiar with the B-2 check, I think it's  
23 Exhibit 11-I?

24           A     Yes, I am.

25           Q     Do you have that in front of you?  It's Exhibit

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1 11-I.

2 A I'm sorry, I'll get it in just a second. Okay.

3 Q And we're looking at page one. Could you  
4 describe what TTS would do relative to that visual

5 inspection on the elevator and tab conditions?

6 A The card says "Visually inspect elevators and  
7 tabs for general condition, corrosion, linkage insecurity of  
8 attachment", and then it -- "Inspect static dischargers for  
9 general condition and security". We would inspect each  
10 attachment on the elevator and the elevator tab. In order  
11 to do that, you have to remove the fairings on the gear tab,  
12 and the fairing on the flight tab.

13 Q And when you were doing the checks, what was the  
14 maintenance environment? I mean yours is a heavy  
15 maintenance facility?

16 A Yes, it is.

17 Q And so where would the airplane be, typically,  
18 during these checks?

19 A I think when we were doing the B-checks, the tail  
20 of the aircraft was on some occasions, outside. The  
21 majority of the airplane would be inside.

22 MR. BREUHAUS: Okay, thank you, no more  
23 questions.

24 CHAIRMAN GOGLIA: Okay, thank you. Federal  
25 Aviation Administration.

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1 DIRECT EXAMINATION

2 BY MR. STREETER:

3 Q Mr. Hoffstetter, first let me apologize for going  
4 over some old ground, but some of our common phrases that we

5 use here among the aviation people, I think, can create some  
6 confusion for the public. Confirm that when Tennessee Tech  
7 works on Emery's airplanes, they're doing it in accordance  
8 with Emery's maintenance program. Is that correct?

9 A Yes, sir.

10 Q So when you reference -- when you and other  
11 reference United manuals, even though those manuals might

12 have United markings on them, they are part of Emery's  
13 maintenance program. Is that correct?

14 A That is correct.

15 Q Okay. And does it also work the same way with --  
16 when you're speaking of the United procedure. It's actually  
17 an Emery procedure that came from United at one time?

18 A Yes, that is correct.

19 Q So everything that's done on the airplane while  
20 you guys have it, is in accordance with Emery's procedures?

21 A That is correct.



22           Q     Okay.  Mr. Hilldrup discussed with you some of  
23     the actions that were taken after the findings of missing  
24     cotter keys and loose jam nuts and so on.  I think I heard  
25     you say, but I want to confirm it, that there were Emery

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1 personnel that actually saw the hardware in this state?

2 A That's what I was told, yes, sir.

3 Q And you were told that by your personnel?

4 A Yes, sir.

5 Q Did you have any follow-up discussions or memos  
6 or anything that you got the word out to your mechanics  
7 about this situation?

8 A No, I did not.

9 Q And finally, there was a discussion yesterday  
10 about the elevator and the tabs on the accident airplane  
11 when you received the items back from the vendor, and there

12 was some discussion about when the installation was done  
13 that there was a kit called for that -- where there was no  
14 kit number matching that. Is that correct?

15 A That's correct.

16 Q Okay, when you have a situation like that where  
17 the work card calls out for a kit, and the kit doesn't  
18 exist, what actions do you take?

19 A Emery generally provides us a list of the parts  
20 that are associated with the kits, so if there is not a kit  
21 available, we will obtain the part numbers that are called

22 for in that kit. When we assimilate the parts required for  
23 any individual task, they're put in a box in the stock room  
24 where there's a complete list of the parts required for that  
25 task, and once all the requirements for that individual task

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1 are complete, then the job card would normally be issued.

2 It shouldn't be issued until we're sure we have all the

3 pieces to put it together.

4 But occasionally, when there's a kit called for,

5 we don't get that put together ahead of time, and

6 occasionally it'll take an inspector or lead mechanic to

7 bring the card back and say, hey, you issued this and we

8 don't have the ability to do the job. So it goes back into

9 planning, the parts are put together, and then the card

10 would be reissued.

11 Q Okay, but the kit number components would be

12 identified by Emery, then, right?

13 A Yes, sir.

14 Q So even though your personnel at Tennessee Tech

15 might physically assemble the kit, it's based on the

16 information provided by Emery.

17 A That's correct.

18 MR. STREETER: That's all the questions I have,

19 thanks.

20 CHAIRMAN GOGLIA: Okay, Emery?

21

DIRECT EXAMINATION

22

BY MR. HAGQUIST:

23

Q Good morning, sir.

24

A Good morning.

25

Q In this discussion today regarding the loose

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1 safety wires and the discussions you had with your  
2 maintenance people, was that on the accident aircraft, sir?

3 A No, it was not. It was well after the accident.

4 Q You testified that TTS is an FAA-approved, Part

5 145 repair station, and that your repair station is approved  
6 to perform substantial maintenance on DC-8 aircraft. Is  
7 that correct?

8 A That's correct.

9 Q Now isn't it true that you have had to  
10 demonstrate to the FAA that you had a workforce of  
11 maintenance personnel specifically trained to work on DC-8

12 aircraft to gain that approval?

13 A That's correct.

14 Q Who performed that training for you, sir?

15 A We used an outside company -- actually there was  
16 two of them. The names escape me right now, but I think the  
17 one gentleman that we used for the A&P portion of the  
18 training, is someone that had also trained -- done some of

19 the Emery training at one time. I'm sorry I can't  
20 remember --

21 Q That's fine.

22           A     We also had a different instructor that did  
23 avionics and electrical course .

24           Q     Thank you.  So it's true that Emery did not  
25 provide DC-8 specific maintenance training to personnel at

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1 TTS?

2 A That's correct.

3 Q TTS didn't rely on Emery to train its mechanics  
4 on how to accomplish DC-8 maintenance, did they?

5 A No, not beyond items that were specific to  
6 Emery's maintenance manual -- policy and procedures manual.

7 Q Isn't it true, sir, that Emery's spent  
8 approximately \$2.1 million, excluding materials, to perform  
9 the D-check on the accident aircraft?

10 A I don't have that number in front of me. That  
11 doesn't sound unreasonable.

12 Q Thank you. With respect to Emery's work cards,  
13 Mr. Hall testified yesterday that he had seen better. Isn't  
14 it true that Emery's D-check maintenance work cards are all  
15 FAA approved?

16 A Yes, it is.

17 Q Isn't it also true that Emery's entire  
18 maintenance program is FAA approved?

19 A Yes, that's correct. There is some confusion  
20 about what's approved and what's accepted, but they are all  
21 FAA --



22 Q Approved or accepted?

23 A Yes.

24 Q If TTS had concerns about Emery's work cards,  
25 isn't it true that TTS could consult with Emery's onsite

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1 representative or Emery's quality control department agents  
2 to clear up any issues it had?

3 A Yes, sir.

4 Q During D-check, was it TTS's responsibility to

5 physically perform the maintenance and inspect the  
6 maintenance that it performed?

7 A Yes, sir.

8 Q Isn't it also true that it was TTS's  
9 responsibility to insure that the parts installed on the  
10 aircraft were in an airworthy condition?

11 A Yes, sir.

12 Q Sir, to continue, it was TTS's responsibility to  
13 install the aircraft elevator and its component parts  
14 correctly?

15 A Yes, sir, that's correct.

16 Q Again, yesterday, you expressed some concern that  
17 the elevator and its control tabs were received by TTS as  
18 separate components. Isn't that true?

19 A That's correct.

20 Q TTS's is a Part 145 repair station. Isn't it  
21 true, sir, that it is competent to assemble these components

22 and make them a serviceable unit?

23 A Yes, sir.

24 Q And isn't it also true, sir, that it's TTS's  
25 responsibility to correctly install and inspect the bolt,

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1 nut and cotter key on the elevator push rod assembly?

2 A Yes, it is.

3 Q So, sir, isn't it also true that it was not  
4 Emery's responsibility to physically install and inspect the

5 bolt, nut and cotter key on the elevator control tab push  
6 rod?

7 A We have a job card with our mechanics and our  
8 inspectors had signed for that work, that's correct.

9 Q Thank you. Again, your testimony yesterday -- a  
10 fair amount of discussion, sir, that you received parts that  
11 were in some way deficient, and that TTS found these parts

12 during Emery's receiving inspection process. Is that  
13 correct?

14 A No.

15 Q Alright, whose inspection process would you have  
16 used, sir?

17 A Some of the them were found during receiving  
18 inspection process. Some of them were items that could not

19 be detected, problems that could not be detected under a  
20 normal receiving inspection.

21 Q And those items that could be identified during

22 the receiving inspection process, was TTS not using the  
23 Emery receiving process?

24 A Emery's receiving process and TTS's receiving  
25 process.

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1           Q     So, sir, that to me seems to confirm the fact  
2     that the receiving processes that were developed by Emery  
3     worked. You identified the parts and they don't get on the  
4     aircraft, is that correct?

5           A     The parts that are defective do not get on the  
6     aircraft, that's correct.

7           Q     Has TTS ever installed a substandard or  
8     unairworthy part on an Emery aircraft?

9           A     Not that I'm aware of.

10           MR. HAGQUIST: I have nothing further, Mr.  
11     Chairman.

12           CHAIRMAN GOGLIA: Thank you. You've given the  
13     Chairman plenty to talk about. And TTS, finally.

14                           DIRECT EXAMINATION

15           BY MR. PORTER:

16           Q     Thank you. My name is Sam Porter. I work at  
17     TTS. We have a few questions for you, Mr. Hoffstetter, if I  
18     may. You were speaking a couple minutes ago about not being

19     able to audit or review the maintenance records for N8079U  
20     from the time it left TTS until the time of the accident  
21     flight, and you were speaking to aircraft log pages. Were

22     there any other documents that would have been included in  
23     the maintenance records that you would have liked to have  
24     viewed in order to try and understand any potential earlier  
25     problems with the elevators before the accident flight?

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1           A     Obviously, we'd like to look at everything -- all  
2     the log pages, the ME-09s, anything related to the aircraft.

3           Q     About approximately eight days after the aircraft  
4     left TTS -- we spoke to it yesterday and heard about it a

5     couple times from other parties -- there was a pilot report  
6     for, I believe it was excessive force on flare during  
7     landing, and then there was some troubleshooting of some  
8     kind accomplished and it was determined that the elevator  
9     dampers were the cause of the problem at that time. I was  
10    wondering if you had done any research at all, or anything  
11    to retrace the potential troubleshooting steps that could

12    have taken place on that day to identify the dampers?

13           A     There is no logical way to get from excessive  
14    force on flare to a damper problem. I don't question the  
15    record that the dampers were installed -- there's  
16    documentation to say they were moved and put in the correct  
17    positions, but my knowledge of the damper system tells me  
18    that if the dampers are installed on the opposite sides,

19    there is very little travel on the damper, maybe an inch to  
20    an inch -- maybe 45 degrees of travel at the most. With the  
21    dampers installed correctly, there's probably 180 degrees of



22 travel on that arm, so there's a more significant damping  
23 effect for a -- more significant resistance to moving the  
24 elevator. So if you have an excessive force or a hard to  
25 flare on approach or on landing, and you move the dampers to

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1 the opposite positions, to the correct installation, it  
2 should have made the problem worse.

3 Q Okay. What's the TTS policy on reusing cotter  
4 pins?

5 A Never. Never happens.

6 Q How would you rate, based on other customers  
7 you've had in the hangar with their onsite support, how did  
8 TTS's heavy maintenance rep perform in relation to other  
9 maintenance representative support that you may have seen in  
10 TTS?

11 A You lost me there.

12 Q How did TTS's onsite reps perform related to reps  
13 provided by other customers? Did he do a good job?

14 A I think -- yes, the Emery reps that were located  
15 at TTS were competent people, yes. They did a good job.

16 Q Did you feel as though that when they were  
17 presented a problem that they had the empowerment to try and  
18 solve problems expeditiously, or would they have to -- would

19 everything have to go through their superiors?

20 A Obviously, they had people that they reported to  
21 and there's a system that they had to work through.

22 Sometimes problems were solved quickly; sometimes it took a  
23 while. We had several -- numerous problems with  
24 cannibalized parts. When aircraft were in heavy check, it's  
25 not uncommon to remove parts and send them out to support

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1 the line -- their line activity. That was requested through  
2 their maintenance reps. There was times when it was  
3 difficult to get pieces back.

4 The general rule that was laid out by the

5 director of heavy maintenance was no parts were removed from  
6 the aircraft during the last two weeks of the check. And  
7 generally that's a good rule and we did the best to follow  
8 it. There were some occasions where they may have removed a  
9 part from one of their heavy maintenance airplanes to  
10 support their line activity.

11 Emery was the only maintenance customer I ever

12 had that we provided a representative at Dayton to  
13 coordinate activity in the different departments at Emery.  
14 We found a significant problem between, I think they called  
15 it their inventory control group, which worked for a  
16 different director than purchasing, but had to approve  
17 everything before it went to purchasing. There were some  
18 communications issues and lines of responsibility and

19 authority problems. Emery asked us to provide a rep to keep  
20 them better informed on what was happening on the airplane,  
21 and we did have a Tennessee Tech Services person on site at

22 Dayton during the last couple of heavy maintenance checks.

23 That was requested by Emery.

24 Q Did that improve the logistical support?

25 A I think it helped communications for both of us.

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22 airplane was in an airworthy condition?

23 A Yes, sir.

24 Q But it was Emery crews that would then get on  
25 board and make the flight?

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1           A     Yes.  Their flight engineer generally showed up  
2 almost a week before departure.  He watched the final  
3 closeup on the aircraft and final rig checks -- very  
4 meticulous program that they went through.

5           Q     Okay.  Typically, was there just one flight done  
6 as the DC-8 came out of the D-check?

7           A     No.  I wish it was, but no it was not.  Generally  
8 there was more than one.

9           Q     Do you recall on the accident airplane, when it  
10 came out of its D-check, how long it was test flown?

11          A     It made one test flight.  When they left on the  
  
12 test flight all the work -- the log book was generally  
13 clear, and we always hoped that there would not be any  
14 problems, and the aircraft would proceed to Dayton, and  
15 that's what happened with the 79U.

16          Q     Okay, thank you.  Yesterday you described a  
17 scenario where there were several different manuals for the  
18 rigging of the DC-8 flight controls.  You talked about the  
  
19 Emery manual, United, I even heard Lufthanza and Eastern  
20 mentioned.  To try and bring that now back to a circumstance  
21 that may be more relevant to this accident, I'd like to talk



22 to you about the procedure for building up some hardware and  
23 correctly installing the push rod. Is there more than one  
24 manual that would describe the build up of that nut and  
25 cotter pin at the end of that control head push rod?

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1           A     Yes, sir, there is. There is information in the  
2 maintenance manual, which is the reference given on the job  
3 card. The temporary revision that was issued by Boeing was  
4 not the maintenance manual, it's to the SRM. The SRM is  
  
5 involved with balance and repairs to the aircraft, but the  
6 SRM temporary revision is the one that was issued that  
7 addresses the installation of the bolt. There's an overhaul  
  
8 manual that also has additional information on the flight  
9 control. And within those three manuals, there are codes  
10 that you refer to, based on the serial number or line number  
11 of the aircraft.

12           Q     In the work that you did at TTS on a variety of  
13 different DC-8s, have you had occasion to build up that  
14 attachment, that push rod attachment, differently?

15           A     No, generally -- as far as I'm aware, that  
16 procedure is the same for every -- all of the installations  
17 on elevators is the same push rod and the same hardware.  
18 There have been several ADs issued against that push rod --

19 I think when it was originally manufactured it was an  
20 aluminum rod. There were some incidents involved with the  
21 DC-8 and they changed that to steel. There are items that

22 we, from experience, know to check for on that particular  
23 rod, so it's a well known area.

24 Q So in your experience, whereas the rigging may be  
25 different based on each operator, the build up of that push

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1 rod hardware is the same?

2 A As far as I'm aware, it is.

3 MR. DeLISI: Okay, very good. Thank you.

4 CHAIRMAN GOGLIA: Dr. Kushner?

5 DIRECT EXAMINATION

6 DR. KUSHNER:

7 Q You mentioned concerns or issues about receiving  
8 parts separately that should have come together. Obviously  
9 this could be a nuisance for you, but could you give an  
10 example or two of areas where this could actually have a --  
11 cause you some concern about either the integrity or fit of  
  
12 the system when it's put back together?

13 A The control surfaces, I guess, are classic  
14 examples. If we were overhauling an aileron and it would be  
15 -- or an elevator -- it would be completely built up before  
16 it's sent to balance. There are provisions in the manual  
17 for balancing the elevator without tab installed, but I  
18 think the things are much more accurate if it's a complete  
  
19 assembly when balance is accomplished. You worry about the  
20 match on the -- on the surfaces, and if an elevator would  
21 come in and we were working towards a schedule, if the

22 balance data is on the data plate on the end of the  
23 elevator, as I believe it was on 79U, then we would probably  
24 go ahead and install the elevator. And the gear tab and the  
25 flight tab are both line replaceable units, which means they

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1 could be replaced at Dayton or anywhere, so we would install  
2 those when they arrived. Those two units, I believe, are  
3 composite or honeycomb units, and if there's a problem with  
4 them when they're inspected by either us or the overhaul  
  
5 facility for the flight controls, they may not have the  
6 capability to do the honeycomb repairs, so they may go to a  
7 different vendor and then come back. Anytime we have  
8 multiple operations there is -- you need to be very cautious  
9 of what's happening on the airplane, and I think we were.  
10 I'm confident that when that aircraft left that the elevator  
11 and tabs were installed correctly and balance was right.

12 It's a nuisance problem.

13 Q It's basically nuisance and extra work.

14 A Yes.

15 Q There's not an issue that you can think of where  
16 something would go together and not function at 100 percent  
17 of design and you wouldn't realize it?

18 A Not that I can think of right now.

19 DR. KUSHNER: Thank you. That's it.

20 CHAIRMAN GOGLIA: Okay, Mr. Hoffstetter, I have a  
21 few questions for you.

22

DIRECT EXAMINATION

23

BY CHAIRMAN GOGLIA:

24

Q Now you mentioned, just moments ago, about

25

training -- DC-8 training. But that's not the only training

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1 required. Your people must know the Emery policies and  
2 procedures, how to handle paperwork, approve parts cards,  
3 and a number of other documents. Who provided that training  
4 for you?

5 A Emery provided a significant portion of the  
6 training. There were areas that we felt were particularly  
7 important or prone to problems that we accomplished our own  
8 training. I think -- Sam, hand me those scrolls back there  
9 -- we made some copies of specific forms that Emery uses and  
10 had those hanging in the stock room and by our work control  
11 stations so they were handy for mechanics to look at and  
  
12 review the procedures. This is Emery's parts tag. There's  
13 three of them. We broke it down into different areas of the  
14 tag and that's something that we did on our own that wasn't  
15 provided by Emery. That was to help minimize problems that  
16 we saw going on with the procedures.

17 Q And how did you know that there were problems  
18 with those procedures?

19 A Well, we audit the paperwork. We audit the tags  
20 at the end of a check, and some of these -- if parts were  
21 received directly by TTS that were Emery purchase



22 components, they would not have an Emery tag on them. We  
23 created the tag with their approval and there are areas that  
24 have to be filled out that were being missed -- dates and --  
25 not significant overview problems, but for sure they were

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1 paperwork issues, and it helped significantly to make sure  
2 everything was done correctly when instructions are right  
3 there in front of the mechanic. He can read them from his  
4 toolbox.

5 Q Did every person that worked on the Emery  
6 airplanes receive this, for lack of a better word, policies  
7 and procedures training from Emery?

8 A My assumption is no. Every person did not  
9 receive their training. We had people that we were hiring  
10 and recruiting. Some of that type -- those individuals were  
11 put into existing crews, received some training from us. We  
12 had built a manual around Emery procedures on how we -- how  
13 we interact with Emery and all of our leads and supervisors  
14 were familiar with that manual -- and inspectors.

15 Q Did, at any time, Emery ever question you about  
16 personnel turnover -- I mean replacement people -- and  
17 whether or not they had received the training in the Emery  
18 policies and procedures.

19 A Emery had a list of approved people that -- for  
20 RII and airworthiness release and specific functions that  
21 are closely monitored by them, and if we had somebody resign

22 or hired somebody in one of those capacities, they would not  
23 be given the authorization to work -- to sign for work on  
24 the -- or do II inspections or sign airworthiness release on  
25 the Emery aircraft until they received Emery training and we

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1 had received verification from Emery that they accepted that  
2 individual.

3 Q Back to the parts ... for a minute. Did you ever  
4 receive any either verbal or written correspondence from

5 Emery when they found a deficiency to any of the paperwork,  
6 and particular, you didn't put those posters up from day one  
7 of the Emery work --

8 A That's true.

9 Q Obviously they went up because there was  
10 problems. Now, you indicated or you said that you caught  
11 them. Did you ever receive any correspondence or

12 communications from Emery that they caught problems -- not  
13 in -- let's expand it -- job cards, parts documents, log  
14 pages?

15 A I don't remember any rejected notifications on  
16 log pages. There may have been some on parts tags. I don't  
17 remember a job card. There was probably some non-routines  
18 that were questioned -- I'm sure there was some non-routines

19 that they questioned the sequencing or the signoff and the  
20 evaluation of corrosion. They came back and did a fairly  
21 extensive training program on the Emery CPCP program, and

22 categorizing levels of corrosion. We had some problems with  
23 making sure they had all the information they needed to  
24 provide the reports that they were mandated to provide to  
25 Boeing. But Emery reacted to those, and we tried to react

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1 to anything that they perceived as a problem.

2 Q Okay, let's talk about parts for a second. A  
3 little bit more. This elevator on the 79 Uniform arrives in  
4 your shop. Is it an serviceable parts tag installed on it?

5 Do you remember?

6 A I believe there was an 8130-3 on it. I'm sure  
7 there was, yes.

8 Q And do you recall whether this part was shipped  
9 to you from Emery in Dayton or another Emery facility, or  
10 from a vendor?

11 A I'm sure it came from a vendor. It did not have

12 an Emery tag when it arrived, and if it had come from Dayton  
13 I believe there would have been an Emery tag with it.

14 Reasonably sure it came to us from Willis Group, I believe

15 is the name of the company we received it from, and it came  
16 with tags from a 145 repair station.

17 Q And what kind of condition was it in when you saw  
18 it? Was it -- what I'm asking here, I guess is -- I'm going

19 to ask it a different way. Sometimes you'll receive parts  
20 with a serviceable parts tag on them that have obviously  
21 been through a very thorough shop visit. It's clean, clean

22 in the areas that you normally couldn't get to because it  
23 had been through a cleaning system. At other times you  
24 receive parts that are serviceable that may have been  
25 recently, or not so recently, removed from serviceable and

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1 registered aircraft. Do you --

2 A I could not tell you the specifics on that  
3 particular part -- an evaluation of how the work was  
4 accomplished or whether I felt like the cleaning and CPCP

5 was adequate. What I could tell you is it did not -- it was  
6 not removed from another Emery aircraft and tagged  
7 serviceable. It did come from a 145. There was a shop  
8 report with it. So I know it came out of a repair --  
9 through a repair station.

10 Q And after you received it, at the receiving dock,  
11 was there anything required to be accomplished on this unit,

12 other than the installation of the tabs and so on? Did it  
13 require any additional work?

14 A I don't remember any damage being associated with  
15 that elevator. We may have had to bring bushings up to  
16 size. I really don't remember on that particular unit. I  
17 don't believe there was anything significant.

18 Q Okay, give me a minute, I want to capture that.

19 A Let me look to my inspector and see if he  
20 remembers anything.

21 (Pause.)



22 Q Okay, now -- sorry -- is that?

23 A He said he didn't remember anything on it.

24 Q Okay. Do you happen to remember if there was a  
25 manufacturer's part number and tag -- a tag identifying the

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1 manufacturer's part number and serial number on the unit?

2 Or was it somebody else's method of identification?

3 A I have looked at several units -- several records  
4 recently and we have seen some that had manufacturer

5 installed part numbers and serial numbers and some that the  
6 part numbers and serial numbers were assigned by the repair  
7 station with the note that they were received with no data

8 plate, that the records -- or that unit -- or here I could  
9 find out. I really don't remember.

10 Q Okay, I may ask you to do that before we finish.

11 A Sure.

12 Q And you can do that and we can talk about it  
13 later. And in fact, I do want you to do that, and in  
14 particular -- not right now -- and I'm particularly

15 interested in how we identify this particular unit, and how  
16 it's a... cover this airplane. The DC-8 was in production  
17 for 20 years. There's a lot of different components from  
18 earlier planes that were not as robust as those required for

19 the stretch version --

20 A That's correct.

21 Q -- and from time to time, mistakes were made, and

22 the wrong pieces were put on the wrong airplane -- the  
23 heavier airplane.

24 A Yes.

25 Q It's a big airplane. So my concern, as I was

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1 sitting up here listening to a few of you talk, is that how  
2 did we determine that that unit, when it arrived at your  
3 doorstep, was the correct one for that airplane? Given --  
4 especially given the state of the manuals, and the fact that

5 the IPC is not an approved document and the revisions that I  
6 see on those pages that we have here in Exhibits have --  
7 they not only have whiskers, the whiskers have turned gray.

8 So I want to follow that to find out how it was determined  
9 that that particular elevator was the right one for that  
10 airplane. I'm going to ask you to do it. And I'm going to  
11 ask Emery to do it.

12 A Okay.

13 Q Okay? Now we've been hitting on their reps a  
14 little bit, and you said yesterday there were three reps,  
15 and normally you had one on days, and one afternoons -- the  
16 scheduling's not important. Do you know where they were in  
17 the Emery system? Were they maintenance reps? Were they  
18 quality assurance reps?

19 A They were maintenance reps.

20 Q Now when an airplane leaves your facility after a  
21 D check, and it's ready to go out for its test flight, who

22 signs the maintenance release on the airplane?

23           A     We do.  If the operator has approved us to sign  
24 for airworthiness, and Emery had approved us to sign  
25 airworthiness on their aircraft.

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1           Q     Okay, and does that person sign with his A&P or  
2 does he sign with your repair station number?

3           A     We put our repair station stamp in the log book,  
4 and I believe the Emery procedure has him put his A&P number

5 in the book also when he signs the airworthiness release.

6 Generally, our chief inspector or one of the more senior

7 inspectors are the ones that are approved by Emery and

8 they'll sign the log book stamp, -- the stamp in the log

9 book. And records are on file and work order number.

10          Q     What about any other maintenance. You talked  
11 about B-checks and am I -- that question was just

12 specifically for D checks. Is that the same procedure for

13 any other maintenance that's done?

14          A     Yes, it is.

15          Q     Now can you give me what your understanding of  
16 the role of the maintenance reps at your facility at the --  
17 specifically, the Emery maintenance reps at your facility?

18          A     They were there to monitor the status of the

19 Emery aircraft and they were there to help solve problems

20 that we would encounter with either supply of parts or

21 methods of repair. They were there to approve non-routine

22 task cards. We have a process that we go through on every  
23 non-routine that's generated where an inspector writes the  
24 card. After the card is written, either the supervisor or a  
25 lead goes out and evaluates what needs to happen to that

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1 card to correct the defect. There's a labor estimate, a man  
2 hour estimate, that's put on the card and it goes to the  
3 Emery rep for approval. He may or may not approve the  
4 hours. There may be some debate or negotiation on how long

5 that card should take. Once he's approved it, it goes into  
6 planning where they would research parts requirements and  
7 schedule to go to mechanics for correction of the defect.

8 You got all that?

9 Q Yes, fortunately I worked this so I know -- in  
10 that arena.

11 A It's --

12 Q RII list.

13 A Yes, sir.

14 Q Emery provided you an RII list.

15 A Yes, sir.

16 Q For the inspectors and inspection items on the  
17 airplane. Two separate lists.

18 A Yes, sir.

19 Q We've talked at length about using the manuals,  
20 use of the United manual and the Douglas manual, so let's  
21 start with -- let's go to the United manual first. When you



22 follow the procedures for this job, or any other job in the  
23 United manual, does it call out in the steps where  
24 inspection is required?

25 A Yes, sir.

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1           Q     When you use the Douglas DC-8 manual and you're  
2     accomplishing a task such as this, does it anywhere tell you  
3     where an inspection is required?

4           A     No, sir.

5           Q     Alright, I have one last piece that I've been  
6     waiting for staff to provide, so what we're going to do is  
7     we're going to take a very short break while Mr. Hilldrup  
8     provides me with the material I've requested of him, and we  
9     will come back to you for one question from me, and the  
10    reason I'm not going around as I suspected some people in  
11    the audience might want to question it, might want to

12    clarify what I have to say. So we'll take a very short  
13    break. Don't go too far, but you can get up to stretch.  
14    Mr. Hilldrup, would you provide me with the material that I  
15    asked you for?

16                   (Whereupon, a seven minute recess off the record  
17    was taken.)

18           CHAIRMAN GOGLIA: Okay, can we go back on the  
19    record, please? Mr. Hoffstetter -- Eunice, are you down  
20    there? Nobody's there. Okay. Here she's coming. Would  
21    you give the witness Exhibit 7T, please? 7 Tango. And Mr.

22 Hilldrup, or somebody, would you put it up on the visualizer  
23 for everybody?

24 BY CHAIRMAN GOGLIA:

25 Q Alright, Mr. Hoffstetter, this is a section of

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1 the Federal Aviation Regulations, and it's Section 121. Now  
2 we mentioned here a minute ago that you were a 145 repair  
3 station.

4 A Yes, sir.

5 Q And would Section 121 govern your activities? I  
6 don't mean that you have to work to those standards, because  
7 you do work from 121 carrier, but are those rules the rules  
8 that govern your operation?

9 A As it relates to Emery, they are.

10 Q I wonder if you would be -- let's take it line by  
11 line. Under "121.363, Responsibility for airworthiness.

12 Each certificate holder is responsible for the airworthiness  
13 of its aircraft." Do you have any aircraft?

14 A No, sir.

15 Q And it says, "including airframes, engines,  
16 propellers, and parts thereof." And under B -- that's A.  
17 If we jump down to B, "The certificate holder may make  
18 arrangements with another person for performance of

19 maintenance." Does that B fit your operation?

20 A We would be the other person.

21 Q Okay. You are the person that arrangements have

22     been made with.

23             A     Yes, sir.

24                     CHAIRMAN GOGLIA:   Okay.   That's all I need to

25     ask.   I would ask Emery to be prepared to respond to

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1 questions in this area. Okay, Mr. Hoffstetter, I have no  
2 further questions -- back to the panel.

3 THE WITNESS: Okay, excuse me, I have located the  
4 8130 for the elevator. It did not have a Douglas data

5 plate. It has a CCI serial number. I believe it was  
6 received by the repair station without a data plate and they  
7 installed their own part number, serial number, code, so  
8 they could track what they did to the unit.

9 CHAIRMAN GOGLIA: And CCI is who?

10 THE WITNESS: I think it's Complete Controls --  
11 Complete Controls Inc.

12 CHAIRMAN GOGLIA: I will -- let's go back to the  
13 tech panel and we'll go around the table.

14 HEARING OFFICER HILLDRUP: Nothing further.

15 CHAIRMAN GOGLIA: Okay, ALPA. Nothing. FAA?  
16 Boeing Company?

17 MR. BREUHAUS: Yes, just one point of  
18 clarification, Mr. Hoffstetter. You mentioned the TR to the

19 SRM. Could you clarify that, please?

20 THE WITNESS: Actually we were both mistaken --  
21 my inspector and myself. The temporary revision is to the

22 overhaul manual, and he's calling our quality control group  
23 back in Smyrna to see if we can't get a copy of that faxed  
24 up here.

25 MR. BREUHAUS: Okay, thank you, no more

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1 questions.

2 CHAIRMAN GOGLIA: Okay, Emery? TTS?

3 MR. PORTER: Nothing further.

4 CHAIRMAN GOGLIA: Okay, I just saw one question

5 or two questions that I failed to ask when we went around.

6 Do you have a policy at TTS if a work card is incomplete or

7 inaccurate -- a work card that you received from one of your

8 customers --

9 THE WITNESS: We notify the customer.

10 CHAIRMAN GOGLIA: And have you ever kicked back  
11 any of these work cards to your customers?

12 THE WITNESS: Yes, we have.

13 CHAIRMAN GOGLIA: Okay, that's all I have. Mr.

14 DeLisi?

15 MR. DeLISI: Good enough.

16 CHAIRMAN GOGLIA: Okay. Mr. Hoffstetter, again,  
17 you're released for now, but I don't want you going  
18 anywhere. You may be back.

19 THE WITNESS: Thank you.

20 CHAIRMAN GOGLIA: Mr. Hilldrup, will you call  
21 your next witness?



22 HEARING OFFICER HILLDRUP: Yes, sir, the next  
23 witness is David Ungemach.

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1 Whereupon,

2 DAVID UNGEMACH

3 was called as a witness, and first having been duly sworn,  
4 was examined and testified as follows:

5 DIRECT EXAMINATION

6 BY MR. CARBONE:

7 Q Good morning, Mr. Ungemach.

8 HEARING OFFICER HILLDRUP: One second, let me  
9 qualify the witness, please.

10 Could you state your full name, work address,  
11 please for the record? Is your mike on?

12 THE WITNESS: I'm sorry. My name is David  
13 Ungemach. My address is [REDACTED] in A...ia,  
14 Ohio. My experience --

15 HEARING OFFICER HILLDRUP: Excuse me, sorry to  
16 interrupt. Your current employer and position.

17 THE WITNESS: My current employer is American  
18 Aircraft Incorporated. I'm a vice-president. My experience

19 in aviation is about 25 years. I worked as a mechanic,  
20 inspector, work in the heavy maintenance arena, the line  
21 maintenance arena. I spent approximately ten years at Emery

22 Airlines. I was hired in '91 in the maintenance control  
23 department. I also worked as the hub manager, and the last  
24 two years at Emery I worked as the director of line  
25 maintenance.

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1 HEARING OFFICER HILLDRUP: Thank you, Mr.  
2 Ungemach. Mr. Carbone will be doing the interviewing.

3 BY MR. CARBONE:

4 Q You stated that you were a manager of maintenance  
5 control, is that correct?

6 A No, sir, I worked in the maintenance control  
7 department as shift manager, not the department manager.

8 Q What did you think of the maintenance control  
9 department? Pros and cons, I mean?

10 A The maintenance control department, when I  
11 started there, was fairly small, but the fleet at Emery was

12 also fairly small. It was a new company and they were  
13 developing their procedures throughout my tenure at Emery.  
14 I felt their maintenance control department was competent  
15 and the people that worked there were experienced people.

16 Q How did their work relationship with line  
17 maintenance?

18 A Well, like any maintenance control department,  
19 relationship between maintenance control and line  
20 maintenance can be difficult at times. Maintenance control  
21 provides technical data and oversight and direction to the

22 line mechanics, and sometimes you have conflicts, but all in  
23 all, I think the relationship was fairly well.

24 Q And how was their relationship with engineering?

25 A Emery didn't have an engineering department until

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1 late in my career at Emery, and I wasn't in maintenance  
2 control at the time that the engineering department was  
3 developed.

4 Q If I wished to acquire a hard copy of information  
  
5 for a B-check, would that be your department that I would go  
6 to for that? Or would that be the records department?

7 A Records department would have the B-check hard  
8 copies.

9 Q Perhaps the next line of questioning is going to  
10 be a little fundamental, but I'm going to ask you to look at  
11 Exhibit 17 Uniform.

12 A I don't appear to have that Exhibit, sir.

13 HEARING OFFICER HILLDRUP: Eunice, could you help  
14 the witness, please? 17 Uniform.

15 THE WITNESS: Thank you. All righty, sir.

16 BY MR. CARBONE:

17 Q You have it?

18 A Yes, sir. I do.

19 Q Could you turn to the page, should be the first  
20 ones, four of 16, B-card number B-002.

21 A Okay, I'm on that page.

22 Q And again, you are an A&P mechanic? Correct?

23 A That's correct, sir.

24 Q Could you please read item number 10C -- 10

25 Charlie -- and explain what is occurring in that step?

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1           A     "Inspect hydraulic pumps for leaks and security  
2 of mounting." Generally you would inspect the hydraulic  
3 pump system for leakage, and make sure it's mounted  
4 correctly, secured correctly.

5           Q     And what does that mean, to secure correctly?

6           A     The securing device, whether it's safety wire or  
7 some sort of locking device is installed. By visual  
8 inspection you don't see any defects with the way the pump  
9 is attached. The hoses are secured correctly, the lines  
10 aren't leaking. There's no evidence of a leak.

11          Q     Could you turn to the next page, please, number  
12 five of 16, Card Number B-002.

13          A     Alright.

14          Q     12-B as in Baker, last line is "Reinstall starer  
15 drain plug, magnetic plug with serviceable rings and secure  
16 as required."

17          A     That's correct.

18          Q     What would secure as required mean to you?

19          A     You'd follow the maintenance manual procedures  
20 for securing it.

21          Q     What would that mean? If you're looking at a



22 magnetic plug, what would you be securing?

23 A Well, the particular plug in question, I would  
24 have to review the maintenance manual, but I'm sure the  
25 particular plug in question is just inserted and safetied.

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1           Q     Okay. The next page. Six of 16. It says, item  
2     number 16, "Secure cap."

3           A     That's correct, sir.

4           Q     How would you secure the cap?

5           A     It would be in the same fashion, sir. I'm sure  
6     this particular cap is safetied.

7           Q     And I would like you to turn to the last card,  
8     which is B-009 card. Right hand and left hand elevator and  
9     tab inspection. The last line is, "Inspect static  
10    discharges for general condition" -- I'm sorry, the line  
11    before that. "Visually inspect elevators and tabs for

12    general condition, corrosion, leakage, and security of  
13    attachment." What would you consider the security of  
14    attachment to be?

15          A     The attachment points of the surface to the --

16          Q     What does it mean by security of attachment?

17          A     You'd make sure that the bolts are installed  
18    correctly, safetied.

19          Q     Safetied? Okay. If you should have a new hire  
20    on your line station, would he or she be able to clear an  
21    item on a B-check card without prior training? Would they  
22    be authorized to clear a B-check card? Would they be

23 authorized to sign a B-check card without prior training?

24 A No, sir. No, they would not.

25 Q The person who accomplished this work card on 079

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1 Uniform in Dayton was a new hire. When would he have  
2 received training on B-check for this?

3 A The training is scheduled through the training  
4 department. That wasn't handled through line maintenance.

5 My understanding was that within about 30 days of their hire  
6 date they receive the training, the basic training from  
7 Emery. That was the goal of Emery.

8 Q You say you had worked for several airlines  
9 before this?

10 A Yes, sir.

11 Q Were they more activity specific on their work

12 cards? Did you have airlines -- did you work for airlines  
13 that had several different airplanes from different  
14 airlines?

15 A Yes, sir, I did.

16 Q Were they work cards more activity-specific?

17 A No, sir. Not more than Emery. The one -- one  
18 airline that I worked for, as a matter of fact, had some

19 pretty serious discrepancies in their 727 fleet. Their work  
20 cards did not specifically address what manuals to use  
21 because their work cards were generic for their fleet. You

22 had to use the same process to determine the effectivity of  
23 the aircraft.

24 Q Mr. Camden, who was your principle maintenance  
25 inspector -- take a look at Exhibit 17 CC -- Charlie

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1 Charlie.

2 A Alrighty. Thank you.

3 Q Actually I'm looking for your -- Mr. Camden had  
4 said in his interview that one of the main problems with

5 Emery was that there was no communication existed between  
6 the flight crews and maintenance. How did you alleviate  
7 this situation?

8 A We had set up meetings -- weekly meetings with  
9 chief pilot, Jim Oswald. We also arranged for meetings at  
10 night, at the hub, with the flight crews. I attended those  
11 meetings.

12 Q Were these meetings attended by both groups or  
13 just separately?

14 A I don't understand sir. I attended meetings with  
15 the flight crews.

16 Q I mean did the flight crews attend the  
17 maintenance meetings, vice versa?

18 A No, the flight crews themselves did not attend  
19 the meetings with the mechanics.

20 Q What resulted from these meetings? Anything?

21 A Yes, the problem that I felt we had, basically --

22     there were a lot of misunderstandings   between the flight  
23     ops department and the maintenance department.   And because  
24     of those misunderstandings, we had -- we had a wall between  
25     the two departments.   We weren't working with each other as

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1 well as I thought we should. I met with the mechanics and  
2 addressed their concerns in writing, and then I would meet  
3 with the crews and present the concerns that the mechanics  
4 had. And vice versa. And it opened up a lot of discussions  
  
5 between the flight crews and the mechanics, but it was  
6 basically through myself or one of my managers that the  
7 discussion took place.

8 Q Were there minimum equipment list problems? Was  
9 that a volatile issue between pilots and mechanics?

10 A Yes, it was.

11 Q In what way?

12 A The pilots' concerns were that MEL items were  
13 being cleared and then redeferred in a repeat fashion.

14 Q How would you do that?

15 A If a mechanic installed a component and performed  
16 a test and found the system to function normally, he would  
17 clear the MEL item. The airplane would fly. If the  
18 problem would reoccur, the crew member would redocument and

19 the item would be put back on MEL. And that did happen.

20 Q And in the MEL process you have four or five  
21 different -- well, actually, it's four different categories.



22 You have A, B, C, and D. Each one is a different time limit  
23 on an MEL.

24 A That's correct.

25 Q How would you -- am I to understand that if a

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1 mechanic had cleared, say a generator item, on a number two  
2 engine, for instance, and cleared the item. If it went one  
3 leg or it was squawked again before the next leg was  
4 completed, that became a new MEL item?

5 A No, sir, the MEL -- when the MEL was opened on  
6 the aircraft the system was not used by the flight crew, so  
7 the flight crew would have no idea whether or not the system  
8 functioned correctly at that point. If maintenance cleared  
9 the deferral, installed a new generator for example, and  
10 cleared the deferral because it functionally tested good on  
11 the ground, and then during flight there was another issue  
  
12 with that system, the crew member would relog it and if  
13 there wasn't time permitting to repair it, it would be put  
14 back on MEL. But that process could take place any time in  
15 that ten day period.

16 Q I think what my question is, is if it dispatched  
17 from Dayton with an MEL item that was recently cleared on  
18 the ground, would you start a new MEL when it landed in

19 Houston? Or was that a continuation of that previous MEL?

20 A If it had been cleared, a new MEL would be  
21 started. You wouldn't continue the old one.

22           Q     Okay, so, in other words, if it did not make it  
23 through its first leg, it was reclassified as a separate  
24 MEL.

25           A     Once the MEL item was cleared, you would initiate

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1 a new one if you were to redefer the system, correct.

2 Q Okay. And was there conflict with repeat write-  
3 ups from flight?

4 A Yes, we had some issues with repeat write-ups.

5 Q Can you expand on that a little bit?

6 A The MEL was a very good example. If we had  
7 issues with the crew members had during flight that we  
8 couldn't duplicate in the process of performing the  
9 maintenance manual tests, and the item was cleared and not  
10 deferred, and it reoccurred, it would eventually fall within  
11 a repeat status. The repeat status, originally, was three  
12 items in ten days, I believe. If the item was resquawked  
13 three times within a ten day period, it was considered a  
14 repeat item.

15 Q In relation to the differences between San Jose  
16 and Cincinnati with the FSDOs, was there a difference in the  
17 way you felt that San Jose and Cincinnati worked with Emery?

18 A Personally, I did, yes. The relationship on the  
19 west coast was, from my standpoint, was very minimal. We --  
20 of course I wasn't the director for very long prior to the  
21 certificate move, but when the Cincinnati office became --

22 the principal inspector came from Cincinnati office, the  
23 communication with him was immediate and daily. We had  
24 meetings every week. We conversed almost every day. He  
25 came to Dayton or one of his members came to Dayton on a

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1 regular basis. We had a great deal of communication with  
2 Cincinnati.

3 Q Alright, from your past experience, looking at  
4 Emery, did you see any need for improvement or was Emery may  
5 have been falling short?

6 A I believe we needed improvement from a line  
7 maintenance standpoint and from a maintenance department  
8 standpoint, a maintenance program has to continually develop  
9 and I felt that Emery needed more development.

10 Q In what ways?

11 A Well, our chronic program that we eventually  
12 initiated was one good step to help eliminate repeat write-  
13 ups and chronic problems with airplanes. We had an  
14 extremely large gap in communication between the flight  
15 crews from even a maintenance standpoint because originally  
16 when I started working as the director, log entries and non-  
17 routines would be used at any point in the maintenance  
18 process and the problem with that is that if you put an item  
19 on a non-routine, a crew member never sees it, so he's not  
20 aware that maintenance is being performed. There were  
21 several issues that we eventually created programs that

22 helped. But as far as the line maintenance standpoint,  
23 development has to continue. It can't stop. Our  
24 maintenance program did not have our own maintenance manuals  
25 and our own specific manuals, and that was some thing we

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1 were hopeful for.

2 Q I'm sorry, you were hopeful for what? What do  
3 you mean you were hopeful for?

4 A Well, Emery had five or six different types and  
5 brands and previous operator aircraft -- all DC-8s, but all  
6 different in their own ways, and because of that there were  
7 a huge amount of technical data that applied to each  
8 airplane. Most airlines that have that problem eventually  
9 develop, for example, United, they developed a maintenance  
10 program specific for their fleet that identifies them. It's  
11 an easier program to use. It helps reduce mistakes, and we  
12 were hoping for that.

13 Q I'm going to go with that, with the maintenance  
14 manuals. On page 15 of your interview, you stated that  
15 Emery had plans to have their own maintenance manuals. I  
16 mean where were you with this? Where did you get -- how far  
17 did you get?

18 A I can only speak indirectly on that, because that  
19 was being handled through engineering, but from the meetings  
20 that I had, they had acquired a company, made some sort of  
21 financial deposit or started the process and they were --



22 I'm not exactly sure how far along, but they were in the  
23 process of gathering data to develop a maintenance manual.  
24 This particular program, from what I understand, was going  
25 to be a digital program so that a mechanic could, from any

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1 compute, he could go in and type in the tail number of the  
2 aircraft, and the computer would only allow him data that  
3 was applicable to that aircraft. Another nice thing about  
4 this program was that there wasn't a revision process like

5 we have it now. The revision would be to a central hard  
6 drive. The mechanics wouldn't have to worry about revising  
7 their computer or getting new disks. It would all be  
8 automatic, which I thought that was an exceptional thing to  
9 do because it helps eliminate mistakes.

10 Q So was there any concern from your line mechanics  
11 or leads concerning the way the manuals or IPCs --

12 illustrated parts catalogs were written?

13 A Yes, we had -- we certainly had concerns with  
14 that, and it seemed to get a little more hectic towards the  
15 end.

16 Q And I'm assuming since you were planning on  
17 redoing the manuals, I was going to ask you, what did you do  
18 to rectify the problems book -- from your perspective, since

19 manuals are handled by engineering?

20 A They were instructed, as directed. They had to  
21 use the maintenance manuals applicable to the aircraft they

22 were maintaining. That was a mandate that we received from  
23 the Cincinnati office.

24 Q I'm going to go back to November 25th for a  
25 minute. November 25, 1999 was the night that Emery had

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1 swapped out the elevator dampers from left to right on 079  
2 Uniform. First of all, is there a difference between a dash  
3 60 model and a dash 70 model DC-8? What are the  
4 differences?

5 A On the DC-8?

6 Q Between a 60 and a -- a dash 60 series and a dash  
7 70 series.

8 A A dash 60 series is a Pratt powered aircraft. It  
9 has turbo compressors and various other systems that are  
10 different from the 70 series, which is a CFM powered  
11 aircraft, with air cycle machines and there -- there are

12 some differences.

13 Q Can you, from a maintenance perspective, explain  
14 what the elevators dampers do?

15 A In laymen's terms they're a shock absorber. They  
16 help eliminate small vibrations or buffeting of the flight  
17 control. They allow a smooth operation of actuation.  
18 They're a gel-filled, I believe it's a gel-filled, unit.

19 But that's how they function, basically.

20 Q Excuse me once again, I'm going to have to find  
21 the reference.

22

(Pause.)

23

Q Can you please look in Exhibit 7-0, please? This

24

is a log page from the time that the yaw dampers were

25

swapped out.

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1                   CHAIRMAN GOGLIA:  Alright, can we pause for a  
2     minute to make sure everybody has that?  Some of our books  
3     don't.  Do all the parties have the Exhibit?  You don't have  
4     it.  Eunice?

5                   (Pause.)

6                   CHAIRMAN GOGLIA:  Okay, we have it now, please  
7     proceed.

8                   BY MR. CARBONE:

9                   Q     Can you tell me what troubleshooting took place  
10    on this airplane?

11                  A     Not specifically, sir, no, I cannot.

12                  Q     Can you tell me how many people worked the  
13    aircraft?

14                  A     No, sir, not reviewing the log sheet.

15                  Q     Can you tell me how many shifts of mechanics  
16    worked the aircraft?

17                  A     No, sir.

18                  Q     Is there any means of finding out who worked this

19    airplane, aside from the person who signed it off?  How many  
20    shifts?  I mean is there a turn over log available?

21                  A     There is a turn over log at each station, and

22 they document in a binder form, per the policy manual, items  
23 that they worked throughout the shift.

24 Q And how long is this log kept for?

25 A I believe it's a year. I'd have to review the

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1 policy manual.

2 Q Is it possible that your mechanics who did this  
3 task to troubleshoot a pilot write-up start stating  
4 "elevator" -- I'm sorry. I'm going to ask you to look at 7-

5 R.

6 A I'm afraid I don't have that Exhibit.

7 (Pause.)

8 A Alrighty, sir.

9 Q This Exhibit is a DC-8 60 series elevator and tab  
10 troubleshooting. The writeup was that an elevator requires  
11 more backpressure than normal to flare the aircraft. Is it

12 possible that with that writeup that your mechanics would  
13 have used this as a troubleshooting guide?

14 A It's possible. I don't know that it's --

15 Q Was this available to them? That's what I'm  
16 saying.

17 A Yes, it was available to them. I don't know if  
18 they used this, though.

19 Q So since I don't have any kind of reference as  
20 far as what it was signed off from, on this log page, is it  
21 possible that they would have used this?



22           A     That is possible, yes.

23           Q     Would you please look on the second page, A-  
24 Alpha-2- binding control surfaces?

25           HEARING OFFICER HILLDRUP:   Again, the Exhibit

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1 number and the page number?

2 MR. CARBONE: I'm sorry. It's Exhibit number 7-  
3 Romeo, and it's page number two.

4 THE WITNESS: Thank you.

5 MR. CARBONE: Let me put it this way, it's manual  
6 page number 2730-0, page 102.

7 HEARING OFFICER HILLDRUP: It should be  
8 identified by a bold number two in the upper right hand  
9 corner. That's the right page. Let's try to use the  
10 Exhibit numbering system.

11 BY MR. CARBONE:

12 Q I apologize. It is page four. Big four on the  
13 side of the page. You see item A-2?

14 A Yes, sir.

15 Q Binding control surfaces. With a writeup like  
16 that, would they have looked to this?

17 A That's possible.

18 Q I ask you to look at the second part, the

19 isolation procedure. The last line is check tab push rods  
20 and linkage for binding or interference.

21 A Yes, sir.

22           Q     Is it possible they would have been looking at  
23     this?

24           A     That's possible.

25           Q     Does that correlate to the bolt that we were

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1 discussing before?

2 A Yes, sir.

3 Q Okay, so without any reference to maintenance  
4 manual on this, and I do want to note that during the

5 investigation the mechanics had said three months later that  
6 they used a particular maintenance manual reference, but  
7 again, I reiterate that was three months afterwards. Is it  
8 possible that they would have used that reference to  
9 troubleshoot this item?

10 A That is possible.

11 Q Okay. There's been talk about the direction of

12 this bolt, how it was supposed to be installed. Is -- do  
13 you know what direction the bolt is to be installed? Do you  
14 have any idea?

15 A No, sir, I do not.

16 Q How did you feel that your mechanic workforce  
17 felt about the training that they received?

18 A I'm not sure how the mechanic workforce felt

19 about the training they received. I felt that the training  
20 programs that Emery had were greatly improving.

21 Q So you felt it was adequate?

22           A     Yes, I felt it was adequate.

23           Q     Did they ever request of you or your management  
24 staff to bring any training in or expand the department?

25           A     Yes, there were several courses that different

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1 mechanics had asked to take, and of course, that was all  
2 done through the training department, so they were the ones  
3 that made arrangements and tracked what training needed  
4 done.

5 Q Mr. Camden, in his interview, had said that -- he  
6 made a statement that the lower management appeared to be  
7 above their heads -- to be in above their heads. How do you  
8 interpret this remark?

9 A I couldn't possibly interpret Mr. Camden's  
10 remark. I have no idea.

11 Q Was there --

12 A I don't know what Mr. Camden was feeling. The  
13 conversations we had, he never indicated anything like that.

14 Q Did you see, as a director, any problems with the  
15 Emery operations during your years with the company?

16 A Absolutely. We had a lot of problems. I mean  
17 every airline I worked for has had problems and Emery was no  
18 different.

19 Q Can you elaborate?

20 A I felt a lot of areas needed improvement. I  
21 thought it took too long to get funds, but you know, in my

22 particular position, my job was to try to accomplish things  
23 as quickly as possible, and I did so by harassing, whining,  
24 begging, whatever I needed to do to get it done.

25 Q Did you feel that the manning at Emery

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1 maintenance was adequate?

2 A I felt that the manning level originally was  
3 adequate. I thought that we were cutting too many people  
4 towards the end.

5 Q Did you feel that the aircraft maintenance  
6 personnel were overworked?

7 A Personally I thought that a mechanic should be  
8 limited to an eight hour day. That's the feeling that I  
9 had. There's no requirement for that, and a lot of the  
10 mechanics actually wanted to work longer hours just for the  
11 overtime. So in my own personal opinion I thought that the  
12 restrictions on our maintenance staff should have been  
13 limited. As a matter of fact, at one point there was a  
14 mandate that I put out to all the managers below me that  
15 restricted a mechanic to working 16 hours or less, and that  
16 applied especially to the maintenance reps because they had  
17 very little time off. So in some aspects, they worked  
18 beyond what I thought was reasonable and others, I thought  
19 they were fine.

20 MR. CARBONE: Okay, I have nothing else.

21 CHAIRMAN GOGLIA: Technical panel?



22 HEARING OFFICER HILLDRUP: Yes, a couple  
23 questions.

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1 DIRECT EXAMINATION

2 BY HEARING OFFICER HILLDRUP:

3 Q Let me go back to the lines of questioning on the  
4 elevator damper troubleshooting, if you will, and we talked  
  
5 about certain things that you thought might have been done  
6 by the mechanics. Given your experience, and perhaps your  
7 position, what might you have done in trying to troubleshoot  
  
8 this writeup -- based on the pilot's writeup -- to  
9 troubleshoot the problem? Is there any more that you could  
10 add over what you responded to Mr. Carbone's questioning?  
11 What might you have done -- could you walk us through the  
  
12 steps, perhaps, of what you might have done?

13 A Each mechanic has his own knowledge of the  
14 aircraft, his own experience, and based on that knowledge  
  
15 and experience, he may choose different directions,  
16 following general guidelines as an A&P would. In this  
17 particular case, the complaint here is that the elevator  
18 requires more back pressure than normal to flare the  
  
19 aircraft, and also during elevator check.

20 In my particular case, I would pull the  
21 maintenance manual up and determine what the pressure

22 requirements are on the yoke, and get a scale and measure  
23 the pressure requirements to see if in fact it did require  
24 excessive pressure. A lot of people are built a lot of  
25 different ways and for me excessive pressure would probably

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1 be a great deal more than what you would need. So it's  
2 difficult under that particular log entry to determine what  
3 it was, and that's where I would begin.

4 If I did find that there was a problem, then I

5 would systematically eliminate sections of the aircraft to  
6 try to determine what section of the aircraft might be  
7 causing it. That would probably be pretty standard for most  
8 mechanics with DC-8 experience.

9 Q I'd like to go back to a little bit of discussion  
10 about repeat writeups. I believe you identified a repeat  
11 writeup as three occurrences within ten days. Is that

12 correct?

13 A Originally. I believe the manual called out  
14 three in ten as a chronic or repeat writeup and the  
15 reliability department would issue a document to maintenance  
16 control that would advise us of that. However, we changed  
17 that and made it a great deal more restrictive, to try to  
18 eliminate any repeats.

19 Q When you say restrictive, you're talking about  
20 perhaps the same number of writeups in a longer timeframe to  
21 capture those?

22           A     Thirty days.

23           Q     Thirty days?

24           A     Correct.  And the reason I based that and  
25  recommended that to my superior, that time frame, because

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1 that exceeded the time frame that other air carriers with  
2 like aircraft, for example UPS and Airborne, that exceeded  
3 the time frame that they had, and I felt that if we could  
4 get to that goal, the chronics could be reduced to below

5 that figure that it would help greatly in both the  
6 maintenance of the aircraft and the relationship with the  
7 crews.

8 Q And by chronic, we're talking the same thing when  
9 you say repeat writeups, or the definition of three items in  
10 ten days or thirty days? Is that what you mean by chronic?

11 A Yes, in my mind, yes. There was a great deal of

12 confusion and discussion between my superiors and the FAA  
13 about what's a chronic and what's repeat. The way I look at  
14 it, if an item comes back, it's a repeat. The problem you  
15 run into is that the computer system that we had was  
16 specific only to ATA chapter and we had a lot of debris to  
17 filter through because the computer told us we had repeat  
18 tire changes, and those in fact were normal occurrences.

19 Tires wore out.

20 Q Let me stop you right there because that was my  
21 next question. I want to find out what the system was at

22 Emery that identified -- what defined a repeat? Or how they  
23 entered the writeup for instance -- is it by subchapter --  
24 ATA subchapter, was that what was triggering the capture of  
25 a repeat?

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1           A     The reliability department had -- per our  
2 manual -- had their own program, and I really couldn't tell  
3 you exactly what they used to track, officially, the repeat.  
4 What we did to try to get ahead of the game -- I wanted -- I  
  
5 advised the manager of maintenance control that I never  
6 wanted to see another repeat form from reliability. Find a  
7 way to fix them before it becomes a repeat. And what he did  
  
8 was he developed a chronic section in maintenance control,  
9 and they used a computer program that took all of the log  
10 page data and all of the pilot squawks, all of the  
11 maintenance squawks, and they broke it down into chapters,  
  
12 and they would determine how many times a specific item had  
13 been logged. And it turned out that it was a very effective  
14 way of determining when a repeat was going to happen. It  
  
15 actually gave maintenance control the opportunity to  
16 position an aircraft at a heavy check station to do some  
17 extensive troubleshooting.

18           Q     Would any writeup or resolution refer to an ATA  
  
19 subchapter, or would that be something that somebody else in  
20 the process would have to assign it an ATA subchapter, for  
21 instance?



22           A     Originally the mechanics were required, by the  
23 regulations, to either one, use a description of the work  
24 performed, or a reference, and in some cases, unfortunately,  
25 they didn't do a very good job of either.  However, towards

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1 the end they were mandated to do both -- a good description  
2 of the work performed, and a reference. And after that it  
3 made it easier for the chronic team to determine what these  
4 items were. But when the chronic team was started, their

5 job was to research the log entries and determine exactly,  
6 by physically reviewing the log items, whether or not they  
7 applied.

8 Q And just to be clear, once they -- a chronic  
9 problem or repeat as defined by Emery -- that would go to  
10 reliability for resolution or examination, or where in Emery  
11 would that be resolved? How would that be handled?

12 A The reliability -- I think I'm confusing things  
13 here. The reliability department had a repeat program,  
14 approved and in place, and that was in fact, in effect. We  
15 did a little bit more on the side, so to speak, in the  
16 maintenance control department. We arranged -- organized a  
17 group and all the different departments were aware of it,  
18 and it was approved through my boss. But the goal was to

19 try to get the repeats before they were actually repeats per  
20 our manual, before they reached that timeline. And we did  
21 receive notices from reliability after that, but the repeats

22 and the chronics -- whatever you want to call them -- they  
23 dropped dramatically.

24 HEARING OFFICER HILLDRUP: Thank you very much.

25 I have nothing further.

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1 CHAIRMAN GOGLIA: Okay, to the parties. ALPA?

2 DIRECT EXAMINATION

3 BY MR. GUNTHER:

4 Q Mr. Ungemach, you talked before about meetings

5 with the pilots. Now when you say the pilots, do you mean -  
6 - is that flight management or was that actual line  
7 personnel?

8 A It was both. I had a meeting that we -- myself  
9 and the manager of maintenance control would attend with the  
10 management personnel, Jim Oswald, and his flight engineer,  
11 and we also would go out during the operation, and I met

12 with the crews several times at night, as well as the  
13 mechanics and talked to the Captains and the flight  
14 engineers that were flying the airplane.

15 Q Was this an ongoing program?

16 A Yes, it was, however it started very late and my  
17 tenure at Emery ended prior to the completion of the  
18 program.

19 Q And did the program start prior to or after the  
20 accident?

21 A No, that was after the accident.

22           Q     Talk a little bit about mechanics.  You say your  
23 mechanics were fatigued at times?

24           A     Were they what?

25           Q     Fatigued?

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1           A     Yes.  At times.

2           Q     And was overtime mandatory for them?

3           A     No, sir.  No, sir.  The only exception to that  
4 would be the maintenance reps, and as long as they were on

5 the aircraft, I considered them on duty.  It didn't matter  
6 if they were sleeping on the aircraft or flying on the  
7 aircraft, or working on the aircraft.  They were considered  
8 on duty, and in those particular cases, they would exceed 16  
9 hours, and that's why I changed the mandate and required the  
10 manager of line maintenance to set up more maintenance reps  
11 so that after 16 hours they had to be removed from the  
12 aircraft.

13          Q     Let me ask you a question -- you said they're  
14 sleeping in the aircraft.  Do you have a crew rest facility  
15 on board any of your aircraft?

16          A     No, they slept during flight.

17          Q     Do you have cots or how do they do that?

18          A     They came up with very inventive ways --

19 hammocks, sleeping bags, things of that nature.

20          Q     Didn't it bother you?

21          A     It bothered me, that's why we changed the rule.

22 I felt that the line mechanic should be held to the same  
23 restriction as the flight crew, to be honest with you. It  
24 wasn't a mandate or an FAR, but that's how I felt.

25 Q You talked about your chronic program. When did

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1 that go into effect?

2 A I can barely hear you, sir.

3 Q Your chronic program? When did that go into  
4 effect?

5 A I'm not exactly sure. I'm not exactly sure the  
6 date it went into effect, several years ago.

7 Q Prior to or after the accident?

8 A It was after the accident.

9 Q What did you do before that?

10 A We followed the same chronic program that  
11 reliability department currently had. We didn't initiate --

12 we started our initiation after that.

13 Q So that was -- it would be applied if it had  
14 three times in how many days was it?

15 A I believe the reliability department was three in  
16 ten.

17 Q So what would you do --

18 A If memory serves me correct.

19 Q Do you know what a category C item is?

20 A Ten days.

21 Q Ten days.



22

MR. GUNTHER: I have nothing further, thank you.

23

CHAIRMAN GOGLIA: Tennessee Technical Services?

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1 DIRECT EXAMINATION

2 BY MR. HOFFSTETTER:

3 Q David Hoffstetter, Tennessee Tech Services. Your  
4 chronic program -- you put the chronic program in place?

5 A The one in maintenance control, yes, sir.

6 Q And that was redundant to the reliability  
7 program?

8 A That's correct, sir. That was a program -- that  
9 wasn't even, as far as I know, prior to my leaving, it  
10 wasn't even in the manual yet. We just tried to do  
11 something to be more proactive.

12 Q You put that in place because the reliability  
13 program didn't work quickly enough to advise you of  
14 problems, or --

15 A I put that in place because I wanted to eliminate  
16 repeats completely, and I wanted the crew members to know  
17 that the maintenance department was doing everything they  
18 could to completely eliminate them.

19 Q At your stations, Emery probably provided  
20 maintenance manual tapes --

21 A Yes.

22           Q     Did you also provide temporary revisions to all  
23 the stations that had tapes?

24           A     Yes, sir, they were supposed to be supplied with  
25 the tapes.  There was a temporary revision manual -- about a

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1 four inch binder. I didn't supply them, so I don't know if  
2 they went there, but they were on the list.

3 Q Was there a system in place to insure that you  
4 didn't exceed duty time requirements for mechanics for Part

5 121?

6 A The duty time requirements per 121 would kill a  
7 man. So, they never exceeded that. But that, as far as I  
8 was concerned, was completely unreasonable for any human  
9 being to try to endure, so the 16 hour mandate was put into  
10 effect by myself. They couldn't work more than 16 hours if  
11 they wanted to. It didn't matter.

12 Q Was there a hot line put into place to allow line  
13 mechanics to call directly into a VP or flight crews or  
14 anyone who felt like they had a problem to get into upper  
15 management?

16 A Yes, sir. One of my -- one of the vice  
17 presidents that I worked for had installed a hot line, and  
18 that particular hot line number was given to everyone,

19 including the flight crews, and the only person that could  
20 review that line was the vice president himself.

21 Q Do you feel like you were getting the support

22 that you needed from your vice president people you worked  
23 for to be able to make changes within the Emery system?

24 A Yes, I always asked for more than I really  
25 thought I would get, but yes, I did.

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1           Q     Could you describe the flow of log books and ME-  
2     09s from outside stations into Emery and the path of that as  
3     it went through your department to get to records?

4           A     Yes, sir. The documents that are completed at an  
  
5     out station, the log pages, the parts tags, the non-routine  
6     forms, all the documents containing to the aircraft were put  
7     into an envelope. The front of the envelope has a type of  
  
8     checklist on it where you document the items that are in the  
9     envelope, and that particular packet for that maintenance on  
10    that aircraft would be returned to Dayton. I believe it  
11    went directly to reliability.

12           Q     That would be the -- not your chronic team, but  
13    to the reliability group?

14           A     Correct, sir, not the chronic team.

15           Q     And where did the information for your chronic  
16    team come from? Did that come from the same package?

17           A     No, sir. One of the requirements of the  
18    maintenance control department was when aircraft landed, the

19    log sheet -- the inbound logsheet, and the log sheet prior  
20    to departure had to be faxed into maintenance control, and  
21    that gave the maintenance controllers the opportunity to

22 review the defects long before reliability ever received the  
23 documents.

24 Q Was there any accountability for non-routine?  
25 Were they serialized or logged in any manner? Was there a

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1 note on the log page to advise somebody that there were non-  
2 routines generated that weren't on the log page itself?

3 A The non-routines -- no, the non-routine form was  
4 a standard form and it didn't have a serial number. I mean

5 on the form you would document tail number of the aircraft  
6 and you would include it in your paperwork when you --

7 Q But if that was lost, there was nothing on the  
8 log page to indicate that instead of writing non-routines in  
9 the log book we used three ME-09s or one ME-09 or anything  
10 like that?

11 A No, sir, the only documentation that that item  
12 existed would have been the checklist on the front of the  
13 envelope.

14 MR. HOFFSTETTER: I have no further questions.  
15 Thank you.

16 CHAIRMAN GOGLIA: The Boeing Company?

17 DIRECT EXAMINATION  
18 BY MR. BREUHAUS:

19 Q Yes, thank you. Mr. Ungemach, could you pull up  
20 Exhibit 17 Uniform? That's the B-2 Exhibit.

21 A I certainly will try.



22                    HEARING OFFICER HILLDRUP: Does the witness have  
23 that, Mr. Ungemach?

24                    THE WITNESS: Yes, sir, I do. Here it is. I  
25 knew I had it here somewhere.

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1 BY MR. BREUHAUS:

2 Q And could you turn to the last page of that  
3 Exhibit? That's the card number B009.

4 A Yes, sir.

5 Q When was this B-2 check performed on the accident  
6 airplane?

7 A On the 20th -- January 20, 2000.

8 Q And where would it have been performed?

9 A In Dayton.

10 Q And what's the -- what kind of facility would  
11 that check have been performed in? Is that line maintenance  
12 work?

13 A That's the hub -- the Dayton hub. Yes, sir. We  
14 don't have a hangar, if that's what you're referring to.

15 Q Correct. So the airplane would be out on the  
16 ramp during that maintenance?

17 A Correct.

18 Q And do you know what the weather was at that  
19 time?

20 A No, sir, I don't.

21 Q Could you take a look at the left hand -- the

22 right and left hand elevator tab inspection line and read  
23 what it says?

24 A "Visually inspect" -- is that what you're  
25 referring to?

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1 Q Yes.

2 A "Visually inspect elevators and tabs for general  
3 condition, corrosion, leakage and security of attachment.  
4 Inspect static dischargers for general condition and  
5 security."

6 Q Sir, I know we've talked about this before, but  
7 how would that be done? That first item on the visual  
8 inspection?

9 A We have man lifts. You would get in a man lift,  
10 go up, do a visual inspection of the attach points.

11 Q So you'd go up and look at the surface?

12 A Correct.

13 Q Would there be any disassembly involved?

14 A No, sir, I don't believe so.

15 Q Was the check successfully completed?

16 A It appears to be, yes.

17 Q Then do we know what the condition of the tab rod  
18 bolt and cotter pin on the control tab were?

19 A At this point in time?

20 Q Yes.

21 A No, sir. It tells you to inspect the attachment

22 points. It doesn't tell you to inspect the control tab.

23 MR. BREUHAUS: Okay, thank you. No more

24 questions.

25 CHAIRMAN GOGLIA: Federal Aviation

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1 Administration?

2 DIRECT EXAMINATION

3 BY MR. STREETER:

4 Q I guess, if you would, sir, just leave that same

5 Exhibit right there, card B 009. The way I read that, it  
6 says "Visually inspect elevator and tabs" --

7 A Correct.

8 Q "... for general condition." Are you stating  
9 that you do not see that as requiring the removal of the  
10 fairing then?

11 A No, sir, that's what I'm saying. I'm saying that

12 it -- the way I read this is you're inspecting the elevator  
13 and tabs for the general condition, not specific. You're  
14 looking for corrosion, leakage and security of attachment.  
15 That's how it reads to me.

16 Q Okay, understood now. Have you ever performed  
17 that inspection yourself as a mechanic?

18 A Not at Emery, no, sir.

19 Q At other carriers?

20 A I've inspected this system at other carriers,  
21 yes, sir.

22           Q     And when you did that inspection, would you  
23 remove the fairing?

24           A     When I did the inspection at other carriers, the  
25 fairing was already removed. I did it in the heavy check

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1 environment.

2 Q I see, okay. Now this inspection at Emery was  
3 done in line check, is that correct?

4 A That's correct.

5 Q And were you the director of line check in  
6 January of 2000?

7 A Yes.

8 Q Or director of line maintenance?

9 A Yes, sir.

10 Q Okay. This, speaking again of this particular  
11 card, Mr. Carbone stated earlier that the mechanic -- he

12 stated that the mechanic who signed this off was a new hire.

13 Do you know that -- is that a correct statement?

14 A I have no idea, sir.

15 Q You do not know whether --

16 A I can't even read his name. I don't know.

17 Q There was an implication that the mechanic had  
18 not yet received his initial familiarization. I'm going to

19 assume that because of your last statement that you don't  
20 know who this guy was --

21 A I don't --



22           Q     -- you don't know whether he completed the  
23 training or not?

24           A     Yes, sir, that's correct.  I don't.

25           Q     Does that mechanic's sign off relieve the

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1 operator, Emery, from their responsibility for the  
2 airworthiness of the aircraft?

3 A No, sir.

4 Q So would it be correct, then, that whether that

5 mechanic had completed his initial training or not, Emery  
6 would still be responsible for the airworthiness of the  
7 aircraft?

8 A That's correct, sir.

9 MR. STREETER: I have no further questions.

10 Thank you.

11 CHAIRMAN GOGLIA: Okay, thank you. Emery?

12 DIRECT EXAMINATION

13 BY MR. HAGQUIST:

14 Q Good morning, Mr. Ungemach.

15 A Good morning, sir. Mr. Carbone asked you a  
16 number of questions about what might have occurred or what  
17 may have occurred in connection with the work done on the  
18 aircraft elevator dampers. Isn't it true that you do not

19 actually know what manuals were referenced by the mechanics  
20 working on the elevator dampers?

21 A That's true, I don't.

22           Q     Isn't it also true that you do not actually know  
23     what the mechanics did when troubleshooting the elevator  
24     damper issue?

25           A     That's also true.  I do not know.

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1 MR. HAGQUIST: That's all we have, sir.

2 CHAIRMAN GOGLIA: Okay, Mr. -- to the Board of  
3 Inquiry. Mr. DeLisi.

4 DIRECT EXAMINATION

5 BY MR. DeLISI:

6 Q Thank you. Good morning.

7 A Good morning.

8 Q As director of line maintenance, where were the  
9 personnel in your department located?

10 A I was in charge of the maintenance control  
11 department, that's located at the Dayton hub. I was in

12 charge of the Dayton hub line maintenance department, also  
13 located in Dayton. And I was responsible for the line  
14 maintenance at the field stations.

15 Q Let's talk about the field stations. Was Mather  
16 Field a field station where your employees were located?

17 A At the time of the crash, it's difficult to say  
18 because the stations moved, but I believe, if memory serves

19 me correctly, at the time of the crash the supervisor was in  
20 fact an Emery employee, but the remainder of the people were  
21 contract employees.

22           Q    Tell me again, the supervisor was an Emery -- the  
23 supervisor of?

24           A    Of the station.

25           Q    At Mather Field?

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1 A Correct.

2 Q And that supervisor was a member of the line  
3 maintenance department?

4 A Yes, sir, he was.

5 Q Could we go back to Exhibit 7-0, it's a  
6 maintenance log sheet.

7 A Alrighty.

8 CHAIRMAN GOGLIA: Does the witness have it?

9 THE WITNESS: Yes, sir.

10 BY MR. DeLISI:

11 Q Item six is that writeup that we've been talking

12 about about the elevator requiring more back pressure than  
13 normal. On this card somewhere, does it identify the  
14 location where this pilot writeup was made?

15 A This -- the log squawk was entered at Dayton.

16 Q And how, from this log sheet, are you seeing  
17 that?

18 A Because the terminating station is Dayton. Upper

19 left hand side of the sheet.

20 Q Upper left hand, the KDY.

21 A Correct, that's Dayton.

22 Q So that writeup was done at Dayton.

23 A Correct. And the signoff was also at Dayton.

24 Q Okay. The -- an entry such as that one,

25 "Elevator requires more back pressure than normal to flare

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1 the aircraft" -- is that something that would have had to  
2 have been dealt with immediately when it was written up?

3 A Prior to departure, yes, sir.

4 Q So you could not have MEL'd an item like that and

5 continue to fly the airplane --

6 A No, sir.

7 Q -- with that squawk being open?

8 A No, sir, that's not an MEL item.

9 Q What would have been the procedure at the time of  
10 the accident if a writeup like this had been entered into  
11 the log book for an airplane on the ground at Mather?

12 A They would have to first determine whether or not  
13 the backpressure was beyond the limits per the manual. If  
14 that in fact were true, then they would have to troubleshoot  
15 the system to determine what was causing it.

16 Q Are you aware of troubleshooting of that nature  
17 having been performed on occasion at Mather?

18 A Troubleshooting of that type was performed at a

19 lot of stations. I don't know that Mather was one of the  
20 them. However, the supervisor that is in charge of Mather  
21 and Reno, both, had extensive knowledge in aircraft rating.



22 He was an extremely experienced mechanic.

23 Q Are you aware ever, of any tendency for flight  
24 crews to delay their writeup of a mechanical issue until the  
25 airplane was at a facility more suitable for the maintenance

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1 to be performed?

2 A I'm not aware that crew members did anything  
3 other than make log entries. When they made log entries,  
4 they were addressed.

5 MR. DeLISI: Thank you. No further questions.

6 CHAIRMAN GOGLIA: Dr. Kushner?

7 DIRECT EXAMINATION

8 BY DR. KUSHNER:

9 Q Yes, hi. I'm just -- on the same discussion  
10 subject. I believe Mr. Hoffstetter said that he did not  
11 feel that the reverse dampers would cause the system to  
  
12 require more pressure to actuate the elevator. Now, if I  
13 were just to read this, I would come to the conclusion that  
14 either your people did not agree with that conclusion, or  
  
15 other stuff was done that is not documented here. Could you  
16 elaborate a little bit? Give me some -- is there a  
17 procedure where somebody checks and says, now wait a minute,  
18 these symptoms, according to all the documentation we have  
  
19 do not imply that that's the corrective action? Let's go  
20 back and see that this has been checked out.

21 A I can't specifically speak about the mechanics

22 performing this task, but I can give you my experience.  
23 Because of the relationship that we were trying to obtain  
24 with the crew and to help prevent recurring log squawks,  
25 even had this log squawk fallen within the maintenance

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1 manual limits of the pull test. The mechanics, by my  
2 instruction, would have been required to inspect the system  
3 further for anything else. In the process of doing that,  
4 they certainly could have determined, at the flight control  
  
5 surface itself, whether or not there was a defect with those  
6 dampers. Whether or not they would cause this particular  
7 log squawk, I can't disagree with Mr. Hoffstetter. I think  
8 it probably would have been more pronounced had the dampers  
9 been installed correctly, however, just in general  
10 inspection of this system, they certainly could have found  
11 this.

12 Q I guess really what I'm trying to understand is -  
13 - I have a symptom or a problem identified. In other places  
14 -- and I can't remember the numbers, so correct me if I'm  
15 wrong -- it gave you the procedures to follow if you had  
16 excessive friction or something else in there. Nowhere did  
17 it say check the dampers.

18 A That's probably correct.

19 Q So is there someplace in your maintenance system  
20 where there's a check done and somebody should be noticing  
21 that the corrective action is not identified any place in

22 the service manuals with those symptoms and we should go  
23 back and do a double check on this?

24 A The maintenance manual gives you exact direction  
25 depending on the certain system that you're troubleshooting.

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1 That does exist. I think what we're looking at here,  
2 though, is a mechanic who went beyond what he was required  
3 to do and he looked further, and in the process he happened  
4 to find this defect. I think that's --

5 Q That's fine. I think that's very good.

6 A But there are already procedures written to  
7 document -- to show how you test certain systems. There --

8 Q Yes, what I'm trying to get to, though, is  
9 nowhere do we see a record of him following the recommended  
10 checks for that system.

11 A That's correct.

12 Q For those symptoms. And yet I don't see anything  
13 in the procedures and what's been discussed that would, in  
14 terms of a oversight, pick up this, that the corrective  
15 action identified does not follow what is suggested to be  
16 done, we'd better go back and make sure and document that  
17 all of the corrective actions that are called for, or all of  
18 the inspections that are called for in the manuals were

19 followed. Is --

20 A I believe that eventually would have occurred had  
21 the squawker turned especially, but the log sheets are

22 reviewed. They're reviewed in several different  
23 departments, including reliability, engineering,  
24 maintenance, and they do search for signoffs that, although  
25 they may have found a defect, don't appear to apply to the

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1 log squawk. That does occur. In this particular case, I  
2 have to agree with you that the signoff is vague and I can  
3 tell you that I've seen signoffs that are several pages  
4 long. In this particular case, it's vague.

5 DR. KUSHNER: Thank you. That's all I have.

6 DIRECT EXAMINATION

7 BY CHAIRMAN GOGLIA:

8 Q Before we get off that subject, you just  
9 mentioned a few minutes ago that this mechanic possibly  
10 could have found this on a general inspection -- the dampers  
11 were different -- and you know, I'm looking at the part

12 numbers of the two units, and the only difference is the  
13 dash number.

14 A He probably wouldn't have noticed the part  
15 number, sir.

16 Q I agree. And for that reason, it's very  
17 interesting -- let's leave that alone. I'll return to that  
18 with other people later. I do have a number of questions

19 for you. I wonder if you could walk me through a typical  
20 day in maintenance control.

21 A There are no typical days in maintenance control,



22 sir.

23 Q I know that. I understand it, having been around  
24 that side of the business.

25 A Yes, I certainly can. The maintenance

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1 controllers work a four on, four off, 12 hour day. The  
2 start of a shift -- we'll use a controller as an example --  
3 as a maintenance controller at the start of your shift you  
4 receive a turnover both in writing and verbally from the  
  
5 controller you're relieving. You are separated from the  
6 hustle and bustle of maintenance control for about 30  
7 minutes and the two controllers will go to the board. They  
8 will discuss the airplane; they will discuss the issues on  
9 the airplane. A question and answer session takes place so  
10 that the new controller coming on duty has a very good idea  
11 of what processes were in place.

12 He then assumes his duties at the desk, and at  
13 that point he will now turn on his phone and he will respond  
14 to the phone calls from various different people and  
15 departments like crews, mechanics, outside vendors,  
16 engineering, and provide data, both technical data,  
17 experience. He provides direction. He will organize  
18 recovery teams, for example, like Tennessee Tech, fuel cell  
19 teams. He notifies the different departments when an  
20 aircraft is AOG, gives an estimate on how long it's going to  
21 take for parts to arrive, gives an estimate on how long it  
22 takes for the aircraft to be repaired. Reports all those --

23 all that information goes into a maintenance control  
24 turnover document which is provided to different members of  
25 engineering and reliability and maintenance and so on and so

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1       forth.

2                   CHAIRMAN GOGLIA:  I just looked at the clock.  
3       We've been going for more than two and a quarter hours.  
4       Let's take a break and come back because I think you need a

5       break.  We may spend a little more time yet.

6                   THE WITNESS:  Wonderful.

7                   CHAIRMAN GOGLIA:  So let's take a -- let's return  
8       here at 10:40 -- a 20 minute break.

9                   (Whereupon, a 25 minute recess off the record was  
10      taken.)

11                  CHAIRMAN GOGLIA:  Okay, Court Reporter ready?  We  
  
12      can go back on the record.  Okay.

13                  BY MR. CARBONE:

14                  Q     When we last left, you were just -- explained a  
  
15      day in the life of a maintenance controller, and we had a  
16      considerable number of items that you mentioned.  I'd like  
17      to break those down a little bit and talk about them, and I  
18      would like you to help me in case I forget any.  But I'd

19      like to start first with the point where, after the turnover  
20      and you sit down and you turn your telephone on.  Typically,  
21      what type of calls do you get?  First of all, where's the

22 break for the 12 hour day? Seven in the morning?

23 Noontime?

24 A Actually the break is done at the maintenance

25 controller's leave, whenever he feels he needs a break.

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1           Q     No, no. I mean between the shifts. Between the  
2 two shifts?

3           A     Oh, there's a -- a separation between the  
4 different boards so that the turnover is separated --

5           Q     So if somebody comes on at seven, another person  
6 would come on at eight?

7           A     Right.

8           Q     So there's always somebody there who had been  
9 there earlier.

10          A     There are always two people there that had been  
11 there earlier. There were three people -- when I worked in

12 maintenance control, there were three just on the  
13 controllers shifts.

14          Q     Okay, and the board you're talking about, it's an  
15 aircraft order flight number board?

16          A     It's an aircraft status board. It was later  
17 updated to a computer program, but at the time I worked  
18 there, it was a manual board you would document the

19 condition of the aircraft with red or green, the items that  
20 were on the -- the board always listed the MEL items, so at  
21 a glance you had a very good idea of the condition of your

22 fleet when you came on duty.

23 Q And at the time of the accident, a rough guess,  
24 how many flights? 50 airplanes? Ten airplanes?

25 A In maintenance?

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1 Q In the fleet?

2 A I believe we were at 40.

3 Q DC-8s and? Were there DC-10s on board then?

4 A I'm not sure if they were on. If they were, they

5 just came on. I'm not sure.

6 Q It really doesn't matter. A phone starts to

7 ring. What are you hearing?

8 A Well, you get all kinds of phone calls. You get  
9 phone calls from line stations. They are required to call  
10 and give you a verbal -- not only are they required to fax  
11 the log page, but give you a verbal on the items inbound on

12 the aircraft, the troubleshooting processes that they're  
13 taking. They give E-tics to maintenance control and  
14 maintenance control uses that to base the E-tic that they  
15 give to the remainder of the airline.

16 Q So inbound -- after the airplane lands and the  
17 maintenance department takes control and they get the log  
18 books, they would call in to maintenance control and give

19 you a status.

20 A Correct.

21 Q The airplane has landed, and the log book



22 contains the following writeups.

23 A Correct.

24 Q And I would assume that you don't put much  
25 emphasis on the landing lights burned out and that light's

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1 burned out, but you would be concerned about items of  
2 greater significance.

3 A Any item that's documented in the log book is  
4 reviewed and faxed in. It didn't matter how severe it was,

5 but of course the maintenance controllers spend more of  
6 their time working on the more critical items because that's  
7 where most mechanics need the most help.

8 Q Okay. Did that help involve identifying where in  
9 the manuals to go for procedures and --

10 A On occasion, it did, yes.

11 Q And in your opinion, what would the condition --

12 I heard you -- you mentioned this already -- but the  
13 overall, the condition of the manual on the DC-8, in  
14 particular.

15 A Well, the manuals were separated by type and of  
16 course the outstations had a copy of all the maintenance  
17 manuals, as well as maintenance control.

18 Q On tape?

19 A Yes, they were on tape. We actually had some  
20 hard copies of wiring diagrams, but everything was  
21 documented on tape.

22           Q     And where were the conversions -- like the cargo  
23 doors?  Where were those located?  Embedded within the  
24 United DC-8 manual or were they somewhere else?

25           A     The different conversions were located in

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1 different areas, but they were all in maintenance control.  
2 Maintenance control had a full set. The outstations had  
3 them too, but for example, the Monarch (ph) door was not in  
4 tape form, it was in hard copy form.

5 Q And how would those stations get that copy? They  
6 had that manual --

7 A They had that, yes.

8 Q And did you do the ordering of parts for your  
9 line stations?

10 A The line stations ordered parts in several  
11 different methods. If the aircraft was AOG, they were

12 required to go through maintenance control to order the  
13 part. If they were ordering a part for a deferral, they  
14 would go through the planning section of maintenance  
15 control, not the maintenance controllers themselves, and if  
16 they were ordering a part for their stock, they could go  
17 directly to the materials department for that.

18 Q And where was the materials department?

19 A It was located in Dayton, a couple hundred feet  
20 away from maintenance control.

21 Q Adding an MEL. Line mechanic in Austin.

22 Airplane comes in, he needs to add an MEL because whatever -  
23 - something's inop and he doesn't have any parts and the  
24 airplane's leaving that afternoon. Walk me through the  
25 process.

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1           A     He would call -- first of all, he would fax the  
2 log page to maintenance control.

3           Q     He would fax the log page before it was  
4 completed?

5           A     He faxes the log page when the airplane arrives,  
6 before there's any maintenance done.

7           Q     Okay.

8           A     So maintenance control is aware he has a defect  
9 with the system and the maintenance controllers will -- they  
10 will attempt to -- the policy was you will attempt to move  
11 known failing components. For example, if he had a  
  
12 hydraulic pump that failed or the log entry had to do with a  
13 hydraulic pump. The maintenance controller, as soon as he  
14 got the inbound log page would immediately try to locate a  
15 pump seal kit, things to replace the pump, just as a  
16 precaution, should that in fact be the defect, and arrange  
17 for shipping to the station and the idea was to try to  
18 prevent items from being deferred. However, if the part did  
  
19 not arrive, or it turned out that the part he needed to fix  
20 it was different from what the maintenance controller had  
21 sent, then the line station mechanic would notify

22 maintenance control of what he needed and he would request a  
23 deferral.

24                   The maintenance controller is the only authority  
25 to issue the deferral. He does it through a computer

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1 program after all of the data, including the log squawk  
2 page, so on and so forth, is entered into the computer. The  
3 computer will, only then, generate a number. You give that  
4 number to the mechanic. That's the DMI number and he

5 follows the MEL procedures to install placards and so forth  
6 as required.

7 Q How many maintenance controllers were there?

8 A Oh, there were three controllers per shift, one  
9 senior controller, one shift manager, one planner, and I  
10 believe two chronics on every shift. I believe that's  
11 correct.

12 Q So you have seven or eight people in the  
13 facility?

14 A Right, the aircraft -- the planners, really their  
15 function didn't involved AOG aircraft as much as general  
16 planning, however, but the controllers -- we broke the fleet  
17 down into separate boards, and one controller was  
18 responsible for a specific number of aircraft. The shift

19 manager would oversee the entire department, so if one  
20 particular controller was overwhelmed, he could jump in and  
21 help him.



22           Q     Now, your MEL log, did you keep a master log of  
23     MELs?  
24           A     Yes, there was a computer program that maintained  
25     that.

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1           Q     So we've heard some discussion today, and I've  
2     also read in the record, about repeat MELs.  And sounds to  
3     me the way you just described it, that the maintenance  
4     controller would be the pivot person in the MEL process, and  
  
5     he would be the person that immediately determined that we  
6     have this repeat MEL process going on.  Was there anything  
7     in the system -- your system -- that would alert the  
  
8     maintenance controller that an MEL was coming back again,  
9     one day, one flight?

10           A     There was, at the end of my time at Emery, there  
11     was.  Prior to that, everything was documented in manual  
  
12     form and controllers were just too busy to go back and  
13     review those.  But at the end we had initiated a program  
14     that allowed the controller, if he tried to reenter an MEL,  
15     he would know that it was a repeat item.

16           Q     But if we played the game of changing ATA code,  
17     would that elude him?

18           A     Well, no, because the MEL itself is specific and  
  
19     on the MEL it wouldn't, because the MEL is a specific number  
20     listed in the MEL and that's the only number you can use.  
21     The ATA doesn't change on that particular item.

22           Q     But sometimes -- never mind.  You mentioned the  
23 three items in ten days and you touched upon the reliability  
24 system in the same sentence a couple of times.  Where was  
25 the reliability department, physically?

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1           A     It was in Dayton, in the same facility that  
2 maintenance control and most of the other departments were.

3           Q     And do you know off the top of your head how many  
4 people there were involved in the reliability department?

5           A     No, sir, I don't.

6           Q     And what was their work product? What came out  
7 of there? Do you know? Did you see it?

8           A     No, sir, I didn't physically see it. I knew when  
9 an item was issued but I didn't physically see it.

10          Q     Okay. And then I would have to assume that you  
11 had no access to the records that they were amassing either.

12           In the course of your work day, if you wanted to see about  
13 repeat items on an airplane that were maybe not MEL-able  
14 items, but were somewhat more secure -- more or less visible  
15 -- you know, an MEL item, as you said, that the crew -- your  
16 organization, but there's other items that occur on the  
17 airplane that don't necessarily come through you routinely,  
18 unless it's a non-routine item that do reside in the

19 reliability department, like high failure rates for certain  
20 components.

21          A     That's correct.

22           Q     Would you ever see that? Did you have access to  
23     it?

24           A     We had a -- yes, we did have access to it. The  
25     department had access to it as a member of the reliability

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1 board, and if there was a reliability issue other than a  
2 repeat, they would issue notices for those also. Those went  
3 -- we received notices from engineering, from reliability on  
4 various issues that we addressed.

5 Q Okay, and before I leave this log page, would an  
6 item like that same item six that we've been talking about,  
7 the elevator dampers, and the excessive back pressure, would  
8 a test flight be required?

9 A No, sir, not per Emery's procedures.

10 Q Did Emery have a policy of test flights? What  
11 required test flights?

12 A Yes, sir, they did.

13 Q And I asked earlier to Mr. Hoffstetter about the  
14 RII items, not necessarily who's approved to sign for the  
15 items, the items themselves -- the required inspection  
16 items.

17 A There was a master list in the maintenance policy  
18 and procedure manual that identified each item that was

19 considered an RII.

20 Q It's item by item.

21 A Correct, yes.

22                   CHAIRMAN GOGLIA:  And Mr. Hilldrup or Mr. McGill,  
23 do we have a copy of that?

24                   HEARING OFFICER HILLDRUP:  I'm sorry, could you  
25 repeat what the topic was?

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1                   CHAIRMAN GOGLIA:  The items requiring inspection  
2  buy-back after work accomplishment.  Do we have a copy?  The  
3  witness just stated there is a list, item by item --  
4                   MR. MCGILL:  I'm sure it's listed in the

5  maintenance ... document -- the MPPM that you all have.

6                   CHAIRMAN GOGLIA:  Is that correct?

7                   THE WITNESS:  That's correct.

8                   CHAIRMAN GOGLIA:  Then I have a copy of that, so  
9  I know it should be in there.

10                  CHAIRMAN GOGLIA:  Okay, thank you.  
11                  BY CHAIRMAN GOGLIA:

12                  Q     Now, in the course of a day -- well, let's not do  
13  that.  We've heard people repeatedly say about the manuals  
14  and how many and the different kinds.  Did you receive a  
15  number of calls from your line stations asking for help to  
16  find things in the manual?

17                  A     Yes, we received calls.  I mean they weren't --  
18  given the amount of work that was being performed, I would

19  say it was negligible for the most part.

20                  Q     Okay.  Now when you go through the different  
21  checks on the airplanes, the B-check, do you have A-checks



22 on the DC-8?

23 A At one time we did.

24 Q Are there any additional instructions on how to  
25 accomplish the task than what I read here on this page?

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1           A     What page are you referring to?

2           Q     Well, on any page.  If you want to be specific,  
3 if you look at the B-9 check card -- the B-2 check card, I'm  
4 sorry -- I'm trying to find one -- I guess one would need to

5 go back and --

6           A     Yes, this -- I think I can answer your question.  
7 The steps that take place in this particular check that's  
8 provided under the 17U is a B-2 check, one of four different  
9 types that we have, and the different items that are  
10 requested in this particular check are items that a mechanic  
11 can find -- for example, it tells you install and secure a  
  
12 cap for the oil, but you would have to go to the maintenance  
13 manual to find out what process you would take to complete  
14 that task.  The reason that -- we had discussed at Emery at  
15 one time when compiling the specific photos and maintenance  
16 procedures for each item into a B-check document, but we  
17 determined that the document would become more confusing and  
18 it would be huge, several inches thick, and because there  
  
19 are so many different types of DC-8s, you would have  
20 stations that would have to stock huge quantities of  
21 paperwork and in my opinion, it would have put the mechanic

22 in a position where he could have easily grabbed the wrong  
23 B-check. We wanted to try to avoid that.

24 Q Okay, go to the last page of that -- there's only  
25 two items on the last page. I'm a new mechanic, fairly new

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1 mechanic at Emery. The second item. Where would I find in  
2 the manual what you mean by visually inspect the elevators  
3 and tabs for general condition? First a broad statement.

4 A Yes, sir, it is. First of all, if you were a new  
5 mechanic you wouldn't be doing it by yourself. That's the  
6 first point that needs to be made.

7 Q Okay, let's say new mechanics get most of their  
8 training by osmosis?

9 A No, if you -- you of course have training classes  
10 that are required, but a new mechanic isn't just turned  
11 loose on an aircraft, especially a B-check. The station is  
12 staffed with experienced people and you work with those  
13 people. The learning process includes hands on. There's an  
14 on the job training program that you also have to work into  
15 and --

16 Q Is that formalized?

17 A Yes, we have a -- Emery had an on the job  
18 training program, yes.

19 Q In the manual someplace?

20 A Yes, sir. OJT forms would be completed. The  
21 person providing the OJT would have to sign the document.

22 Q Okay, and just --

23 A But you're correct. The statement is asking you  
24 to do a general visual inspection. It isn't asking for  
25 anything specific.

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1           Q     I mean something this simple, do I do it from the  
2 ground or do I get a stand?

3           A     Well, you can't check the attachment fittings  
4 from the ground. So you would have a stand.

5           Q     And do I go above and below it, or do I just look  
6 at the attachment fittings from below?

7           A     You'd have to look above and below to see the  
8 upper and lower part of the surface.

9           Q     Those are just types of general questions I  
10 wouldn't expect --

11          A     I understand. I think a reasonably intelligent

12 person could determine that to complete what it's asking you  
13 to do, you would have to go up to the airframe. I mean  
14 that's the -- a lot of this is -- a lot of the things that  
15 occur in the maintenance manual themselves require common  
16 sense, and I think this would be one of them.

17          Q     Now, after general condition, it talks about  
18 corrosion, and then the next item is leakage. What kind of

19 leakage do you think we're talking about here?

20          A     Well, you could have -- it's asking you to check  
21 the elevators and the tabs, so you could have a damper or

22 something else that might be leaking.

23 Q What else is up in there? Are these powered  
24 flight controls?

25 A No, the damper would be the only thing on that

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1 system, but if you're in that area of the tail, you really  
2 want to look for not only for the item that's listed here,  
3 but anything in the general area. But in that particular  
4 case, the damper would be the issue, I would think.

5 Q Do you know off the top of your head whether  
6 those expanded instructions would be found in the manual?

7 A For?

8 Q Accomplishing task documents or B-check. If you  
9 know, that's fine. We'll find out.

10 A I'm not sure. Yes, I'm sure they located in  
11 there.

12 Q Okay. Now, the maintenance reps that were in the  
13 facility, Mr. Hoffstetter mentioned that there were  
14 maintenance reps as compared to quality reps. When they  
15 were in the facilities, were they under your control?

16 A No, sir, the maintenance rep worked for the heavy  
17 maintenance director.

18 Q Okay, and they didn't report to line maintenance  
19 at all?

20 A No, sir, with the exception of us stealing their  
21 parts, they really had no communication with us.



22           Q     And speaking of that, how did you control your  
23 borrow of raw parts?

24           A     There was a document we had to complete to rob a  
25 part. It had to be approved by Mr. Almond (ph) or the

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1 maintenance rep at the facility. They would remove the --  
2 we would fill out the document, they would approve it. The  
3 facility that had the aircraft would remove the part and  
4 ship it as requested.

5 Q And do you know the RII policy as it pertains to  
6 flight controls? I know I'm just asking if you --

7 A Generally, I do. I can give you a general idea.

8 Q I won't ask you any specific questions for that.  
9 Just give me a second here.

10 CHAIRMAN GOGLIA: That's all the questions that I  
11 have, and we have another round back with the technical

12 panel from the parties. The technical panel?

13 HEARING OFFICER HILLDRUP: Yes, sir, I think Mr.  
14 Carbone has a question.

15 REDIRECT EXAMINATION

16 BY MR. CARBONE:

17 Q Mr. Ungemach, before you said that security  
18 relates to safety, safety-ing specifically, did you not?

19 A It could. Yes, it could. I mean if it says to  
20 check for security, that would be one thing you would check.

21 Q So you're saying that safety of an item, safety

22 wire, some sort of safteying device is considered a  
23 security?

24 A What I'm saying is that it tells you to check for  
25 the security of an item. It could mean many things,

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1 including safety wire, yes.

2 Q Including safety wire. So when you look at a  
3 line like "security of attachment", that would include  
4 safety wiring? Cotter pins?

5 A It could include it. To be specific, it depends  
6 on the item you're referring to. If it tells you to secure  
7 an oil cap, you have to -- the oil cap has to be screwed  
8 down at a certain torque, and on an oil cap there is safety  
9 wire that is applied that keeps it from unscrewing, yes,  
10 sir.

11 Q Alright, so are you saying that the

12 interpretation of that line should be left up to the  
13 maintenance personnel?

14 A What line are you referring to?

15 Q To "general condition, corrosion and security of  
16 attachment".

17 A On?

18 Q You're saying it could mean something. What I'm

19 asking you specifically is, what --

20 A Are you talking about the B-check, sir?

21 Q The B-check 9 card.

22           A     Well, on the B-check, when they're talking about  
23 security, I think they're -- I think it's obvious that  
24 they're talking about the control being attached correctly  
25 with -- I don't know if that control has safety wires.  If

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1 it does, then it would have to be safety wired.

2 Q Well --

3 A I'd have to look at the maintenance manual to  
4 answer that question.

5 Q Well, let's say since according to Mr. Robbins --  
6 Mr. Robbins before had done a PowerPoint display, and it  
7 showed that the tab is attached to the input rod, would you  
8 consider that an attachment to a tab and elevator?

9 A Tab is attached --

10 Q To the input rod.

11 A It's connected to the rod -- that would not be my

12 interpretation of that B-check. My interpretation of that  
13 is you're checking to see if it's attached correctly, that  
14 rod is a control rod.

15 Q But what Mr. Robbins was saying that it is  
16 attached at the hinges and at the input rod. Would you be  
17 checking for attachments?

18 A I would not be checking that rod, that's not what

19 I would consider an attachment. Yes, it is attached, but  
20 the attachment point is what -- I don't have the B-check in  
21 front of me, but --

22           Q     It's "visually inspect elevators and tabs for  
23     general condition, corrosion, leakage and security of  
24     attachment."

25           A     That's not a point of attachment.  That is a

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1 connection, but it is not a point of attachment. On a B-  
2 check, that would not be something that I would look at,  
3 given that language.

4 Q There's a hinge fitting underneath that

5 attachment too. Would that be considered an attachment  
6 according to this B009 card?

7 A If there's a hinge fitting, I would consider the  
8 point at which that control attaches to the other surfaces  
9 as an attachment point.

10 Q So would you be required to remove a panel to  
11 double check to see if that attachment is secure?

12 A If there was a panel covering it, you would.

13 Q Okay, and you're saying the attachment between --  
14 or the -- put in your words, the connection between the  
15 input rod from the elevator damper to the tab is not an  
16 attachment.

17 A That's not an attachment point, no. I believe on  
18 the DC-8 tab there are four attachment points, hinge points.

19 Q Does it concern you at all that Mr. Hall and Mr.  
20 Hoffstetter and yourself disagree on how that part is  
21 interpreted?



22           A     I'm not aware that there is a disagreement.

23           Q     I believe Mr. Hall and Mr. Hoffstetter had said  
24 that they would remove -- I'm sorry, at least Mr. Hall said  
25 that they would remove that panel to verify that the

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1 attachment to the input rod to the tab was attached.

2 A Yes, sir, he did. He also said that he was using  
3 the full blown B-check, and I don't have that document in  
4 front of me, so I'm not sure how that's worded. This is

5 part of the phased B-check and ... the language has been  
6 changed.

7 Q I believe Mr. Hall was looking at the B009 card  
8 when he said that.

9 A Okay, I'm --

10 Q What I'm trying to draw here is there's a  
11 disagreement between two A&P mechanics on how they interpret

12 this card. Do you agree on that?

13 A That's possible. If there's a disagreement.

14 Q I think it's more than possible. I think it's  
15 very likely that there is a disagreement in interpretation  
16 of this card.

17 A Okay, I'll agree with you there. I don't see a  
18 problem with it.

19 Q Okay. I would like to go back to what Mr.  
20 Hagquist had asked you before about the writeup concerning  
21 November 25th where the elevator dampers were reversed. I

22 just want to clarify that I was not saying that that was  
23 what they used, but I would like to verify -- is it  
24 possible, since there is no reference in their log page, is  
25 it possible that they used that reference, that they used --

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1 I'm sorry, that maintenance manual to troubleshoot that  
2 item?

3 A The log squawk that's written down here is  
4 extremely vague. It doesn't provide a great deal of data

5 for a mechanic to determine where the defect may be. Given  
6 the fact that he pretty much has everything in the system  
7 could be possible, he could have used that. He could have  
8 used a lot of things. I really don't know what he used.

9 Q Okay, I just want to verify that you're saying  
10 that that log -- that that m... reference in the DC-8 60  
11 manual could have been used to reference to troubleshoot

12 this item.

13 A The troubleshooting reference that I reviewed  
14 earlier is a reference that he could have used --

15 Q Okay.

16 A -- but given the data that's here, I have no way  
17 of knowing if he did.

18 Q We're in agreement with that. There's no way to

19 tell by the log page if or if not this gentleman or these  
20 gentlemen or -- I should say mechanics to be correct --  
21 these mechanics actually used that maintenance manual

22 reference or any other maintenance manual reference. There  
23 is no way to determine that.

24 A Given the data that's on the sheet, that's  
25 correct.

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1 MR. CARBONE: That's all for me.

2 CHAIRMAN GOGLIA: Okay, anyone else at the tech  
3 panel? Okay, to the parties. FAA? ALPA?  
4 REDIRECT EXAMINATION

5 BY MR. GUNTHER:

6 Q I have just one more question, sir. Is there --  
7 where the clevis is mounted for the control tab, is there a  
8 pivot point or attachment that that clevis is on that ...  
9 and supports that side control tab?

10 A The push rod is connected to the control tab on  
11 the inboard section of the tab.

12 Q And what is it pivot about? Is there a seal  
13 bearing or is there a bearing that --

14 A I'm not sure which type of bearing it is. The  
15 bearing is sealed, but I don't know what type it is.

16 MR. GUNTHER: No further questions.

17 CHAIRMAN GOGLIA: Tennessee Tech?

18 MR. HOFFSTETTER: Yes, I have a better picture of

19 what the attached point for the rod and the inboard bearing.  
20 Could I give this to Mr. Ungemach to help clarify what we're  
21 talking about here?

22 CHAIRMAN GOGLIA: Is it an Exhibit?

23 MR. HOFFSTETTER: No, sir.

24 CHAIRMAN GOGLIA: Then, Eunice, I wonder if you  
25 would make a couple dozen copies of that?

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1                   MR. HOFFSTETTER: Well, we could also put it on  
2 the visualizer. I could identify it as an Exhibit if you'd  
3 like.

4                   CHAIRMAN GOGLIA: Well, we don't -- the parties  
  
5 haven't had a chance to look at it, so -- is it out of the  
6 maintenance manual? What's the source?

7                   MR. HOFFSTETTER: It's a section out of the DC-8  
  
8 overhaul manual.

9                   CHAIRMAN GOGLIA: Okay, why don't we pass it  
10 around the table quickly. If anyone has an objection --  
11 start right here, Eunice, with Boeing -- if anyone has an  
  
12 objection, we'll stop and pause until we clear it. Emery.

13                   HEARING OFFICER HILLDRUP: Mr. Hoffstetter, could  
14 you look at Exhibit 7-J. At this point, all the parties,  
  
15 once you've seen the proposed Exhibit, if Exhibit 7-J  
16 satisfies that, we've got it already in the docket material.

17                   MR. HOFFSTETTER: No, sir, it does not.

18                   CHAIRMAN GOGLIA: Any objections? Okay, Eunice,  
  
19 would you make a couple dozen copies, and we'll just take an  
20 in place pause for a second until we get them so that  
21 everybody can have it and put it up on the visualizer.



22

(Pause)

23

CHAIRMAN GOGLIA: Okay, I believe we all have a

24

copy of the Exhibit now.

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1

2

## REDIRECT EXAMINATION

3

BY MR. HOFFSTETTER:

4

Q Looking at this Exhibit it shows a picture of the

5

push rod for the tab and the hinge point that attaches to

6

the same fitting, and looking back at the B-2 job card,

7

would you say that the job card calls for inspecting that

8

hinge point that's the inboard attachment on the aileron --

9

or the elevator tab?

10

A Item 190? Is that the item that you're referring

11

to?

12

Q Yes, that would be the bracket that's mounted on

13

the elevator.

14

A That would be an inspection point you would have

15

to inspect.

16

Q Thank you. Can you do that without the fairing

17

removed?

18

A I can't answer that without looking at the flight

19

control. I just don't know.

20

Q I think Mr. Robbins' PowerPoint showed pretty

21

clear that you can't inspect that area without removing the

22     fairing.  Were you a member of the reliability board at  
23     Emery?

24             A     Yes, sir, I was.

25             Q     And did you feel like you could not get the rapid

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1 response that you needed from the reliability group, and  
2 that's why you started your chronic team or --

3 A No, I started the chronic team because I didn't  
4 want to ever get anything from reliability. I wanted us to

5 be better than that. That's really the reason.

6 Q During the -- the troubleshooting guide that Mr.  
7 Carbone had showed us earlier, would you say that's the  
8 guide that should have been used to troubleshoot the  
9 elevator systems when the dampers were changed?

10 A I would not say that. And the reason I wouldn't  
11 say that is because the troubleshooting is a guide, it's not

12 -- troubleshooting an airplane is not that black and white.  
13 It's hard to say what he used, but given the log squawk  
14 here, he could have been -- there's a lot of things he could  
15 have been doing.

16 Q Where would you have gone? Could you have gone  
17 to that push rod looking for freedom of motion from the tabs  
18 and work forward?

19 A If I were doing this, I would have gone to the  
20 maintenance manual, found out how many pounds it takes to  
21 pull that unit back, found out whether or not it was within

22 limits. If it was within limits, I would have done a visual  
23 of the system, nothing more. Signed off the log squawk and  
24 waited to see if it came back or if any other crew member  
25 had a problem with it.

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1                   So a couple pieces of information that would be  
2 extremely important to the mechanic would be, one, is this  
3 an item that happened more than once? two, after he found  
4 this discrepancy and he repositioned these units, did it

5 reoccur? I mean the mechanic has to collect a lot of that  
6 data, review the log page to try to determine whether or not  
7 he's going down the right road because the log entry is just  
8 extremely vague. That's my -- what I would do with it.

9                   Q     Assuming there was excessive force required to  
10 move the elevator, would that be a logical place to break  
11 the system to check for binding and wear?

12                  A     Would what be a logical place?

13                  Q     At the push rod, where the tab connects.

14                  A     I -- I couldn't imagine going there myself unless  
15 I went through everything else -- and it's possible you  
16 might end up there, but I don't see that being very likely.

17                  Q     That's not a --

18                  A     A line mechanic -- it's a lot different from

19 heavy maintenance. Working in both, it's rather difficult  
20 to explain sometimes, but a line mechanic -- his whole  
21 troubleshooting technique really is based on the information

22 he gets in the log squawk. If it's a vague squawk, you  
23 know, this isn't up -- he could literally spend weeks trying  
24 to find the problem. So he'll do a maintenance manual test,  
25 find out if the system functions correctly, and if it

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1 doesn't, then he can start narrowing it down. But in my  
2 experience, a lot of the times you find that because the log  
3 entry was so vague, and it did pass the maintenance manual  
4 test, you really have to wait until it's logged at a

5 different time with a better description.

6 Q We don't know if this passed a manual maintenance  
7 test or not, that I --

8 A I have no idea, given this data. I really can't  
9 answer that.

10 Q You had spoken about log pages being faxed into  
11 the maintenance control when the aircraft arrived, and that

12 information from the log pages goes into your chronic team  
13 computer?

14 A It's given to the chronic team and they -- they  
15 use the log sheets to track the computer run that's  
16 generated by the company. There's a large stack of computer  
17 runs and the reason that I wanted them to get the log sheets  
18 was because the computer run is a very brief description,

19 and the log sheets will help clarify what's wrong so if  
20 there is an ETA discrepancy, they can pick up on that and  
21 actually apply a chronic when it may not have been.



22           Q     There was a policy at Emery to -- for the  
23 mechanics to not make log book items if they were doing  
24 work, to use an ME-09, is that correct?

25           A     Could you repeat that question?

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1           Q     I believe I was told earlier that there was a  
2 policy at Emery, if the mechanic, doing a post flight  
3 inspection found a problem, he would document that on an ME-  
4 09 and not make a log book writeup. Is that correct?

5           A     Not that I'm aware of, no.

6           Q     Would it be possible for him to use an ME-09 to  
7 document squawks found on a post flight?

8           A     It was against policy. The policy was that non-  
9 routine forms would be used at B-check inspections or  
10 higher. We had a lot of difficulty -- it was a policy that  
11 I initiated because we had a lot of difficulty showing the  
  
12 flight crews the extent of the work that was being done and  
13 so we changed it.

14          Q     When did you implement that policy? That was  
15 after 8079U?

16          A     Yes, sir, it was after that.

17          Q     Before that policy was implemented, there was a  
18 general policy -- or mechanics were allowed to use the ME-09

19 to document maintenance at a line station?

20          A     Yes, they were, prior to that.

21          Q     How would -- did you have your chronic team in

22 place at that time?

23 A At the time of the accident?

24 Q Yes.

25 A No, sir.

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1 MR. HOFFSTETTER: That's all, thank you.

2 CHAIRMAN GOGLIA: Before we proceed further, ME-  
3 09 is what?

4 THE WITNESS: It's a nonroutine form. You

5 document discrepancies that the mechanic would find. Crew  
6 members enter discrepancies directly into the log book, but  
7 for example, on a B-check, when you're dealing with -- you  
8 could be dealing with 50 or 60 discrepancies, you would eat  
9 the entire log book up doing a B-check, so that document was  
10 a supplement to the log sheet.

11 CHAIRMAN GOGLIA: Okay, and that's -- stayed

12 attached to the completed B-check form?

13 THE WITNESS: Yes, sir.

14 CHAIRMAN GOGLIA: And went to maintenance  
15 records?

16 THE WITNESS: Yes, sir. It was put in an  
17 envelope and the envelope had a check list and was sent to  
18 aircraft records.

19 CHAIRMAN GOGLIA: Okay, where did I leave off --  
20 the Boeing Company, you're next. No? Did I get everybody  
21 else except Emery?

22 MR. HOFFSTETTER: Could I clarify the ME-09?

23 CHAIRMAN GOGLIA: Sure.

24 BY MR. HOFFSTETTER:

25 Q One time. The ME-09, at the time of the

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1 accident, could have been used by line maintenance personnel  
2 to document maintenance accomplished on the aircraft. They  
3 are not serialized. They're really not a control document  
4 other than the fact that they would go into an envelope and

5 it would say we have three ME-09s on the face of that  
6 envelope when it went into records. Is that correct?

7 A The ME-09 -- the nonroutine form, I'm not sure  
8 what the number was prior to -- but the nonroutine form had  
9 a section where you would identify the tail number of the  
10 aircraft, the date, and there were three or four blocks, I  
11 believe, on each sheet that allowed you to write a

12 discrepancy. There was no -- I'm not sure what you mean  
13 by --

14 Q Well, there was no traceability -- there was  
15 nothing in the log book or a mandatory control document,  
16 like a log page, that has a serial number on it that says we  
17 issued three nonroutine forms in addition to this log page.  
18 I assume when the envelopes came in to maintenance records,

19 they were opened and thrown away -- looked to see if there  
20 was material there and the envelope disappeared. So there  
21 is no record that we issued 20 nonroutine forms to 8079U

22 during the three months that it operated or 200. We would  
23 never know.

24 A Well, there was the -- you're right, the form did  
25 not have a traceability number, however, the data was

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1 entered on the envelope and it was sent to aircraft records.  
2 Now I'm not familiar with exactly what their procedure is,  
3 but I can tell you that there was more than one occasion  
4 when aircraft records sent a notice to myself that a

5 document, a tag, a nonroutine, a log page, something was  
6 missing from that envelope when they received it, and we  
7 immediately went to the station and recovered it. So they  
8 have a process, but I don't know specifically what it was.

9 MR. HOFFSTETTER: Thank you.

10 CHAIRMAN GOGLIA: Who did aircraft records answer  
11 to in the chain -- the management chain at Emery?

12 THE WITNESS: I believe engineering.

13 CHAIRMAN GOGLIA: Okay. Thank you. Emery  
14 Worldwide, I think, is the last one. Am I correct?

15 MR. HAGQUIST: Yes, sir, we just have two more.

16 REDIRECT EXAMINATION

17 BY MR. HAGQUIST:

18 Q Did you find the manuals difficult or confusing?

19 A The maintenance manuals?

20 Q Maintenance manuals.

21 A I didn't find them difficult or confusing, no,



22     sir.

23             Q     When you were using those maintenance manuals,  
24     did you have trouble identifying the appropriate manual that  
25     was required to perform a task?

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1           A     No, sir.  There was a procedure that, as far as I  
2     know, every airline uses, to determine which manual's  
3     effective for the airplane, and that -- we had a procedure  
4     at Emery too, and it was -- wasn't extremely difficult, no,  
  
5     sir.

6                     MR. HAGQUIST:  We have nothing more.

7                     CHAIRMAN GOGLIA:  Okay, was that the last round?  
  
8     I've lost track.  Is that the second round for everybody?  
9     Okay.  Tech panel?  Okay, Mr. Carbone.

10                                 FURTHER REDIRECT EXAMINATION  
11                     BY MR. CARBONE:

12           Q     I'm sorry to be tenacious about this, but I just  
13     want to verify and close the subject.  Could you pull  
14     Exhibit 7-Juliet, Mr. Ungemach?

15           A     Yes, sir, one moment, please, to see if I have  
16     it.

17           Q     I promise you, this will be the last time I ask  
18     you about this.

19           A     I don't have it.  Thank you.  Alrighty, sir, I  
20     have it.

21           Q     Item 7-Juliet is an illustrated parts catalog,

22 page 27-32-06, page 1001. At the right hand side, about  
23 midway, there's three numbers: 876, going down, and then A,  
24 phraseology, inboard hinge bolt with an arrow, points down  
25 towards where the connection between the input rod and the

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1 tab, and right below that is the inboard hinge bolt. Would  
2 you agree that that is an attachment?

3 A That particular hinge located right below that  
4 appears to be an attachment, yes, sir.

5 Q Are you aware that the only way to see that is by  
6 removing the panel?

7 A I am not aware of that, but I don't disagree with  
8 that.

9 Q I understand that. If that's the only way to get  
10 to it, to see it, to visually verify that it is attached and  
11 safetied, would you have to remove the panel?

12 A If you're required to do a visual inspection of  
13 an attachment point, and the only way to do that is to  
14 remove that faring, you would have to remove that faring.

15 MR. CARBONE: Okay. That's it.

16 CHAIRMAN GOGLIA: Mr. DeLisi?

17 MR. DeLISI: Nothing further, thank you.

18 CHAIRMAN GOGLIA: Dr. Kushner?

19 DR. KUSHNER: Yes, I just have one quick  
20 question. When you were describing procedures you might  
21 follow, you said you'd go to the maintenance manual and

22 you'd record the force needed to activate and see if it was  
23 within the range of acceptable. Where would, in the  
24 process, in all these forms, where would you document the  
25 results of your check?

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1 THE WITNESS: On the log page.

2 DR. KUSHNER: Okay, so -- but we don't see  
3 anything like that. What would we assume?

4 THE WITNESS: That he made a very poor entry.

5 DR. KUSHNER: Okay. That's it.

6 CHAIRMAN GOGLIA: Okay, thank you. I have no  
7 further questions. I would request that you stay around for  
8 the remainder of the day. I assume we're going to finish by  
9 the end of the day. Although we may be a little bug-eyed  
10 before we get there. And thank you very much for your  
11 testimony.

12 To the parties: It's 11:30. If we break for  
13 lunch now, we could probably do it in an hour since we will  
14 be ahead of the rush upstairs for food. If we wait until  
15 after the next witness, we'll probably need more than an  
16 hour. What's the pleasure? I see a lot of nods saying yes  
17 for now. Okay, in that case, we'll take a one hour break,  
18 come back at --

19 HEARING OFFICER HILLDRUP: Mr. Chairman? I'm  
20 sorry to interrupt, but before we get too far away, I need  
21 to follow my protocol. I need to have you identify, Mr.

22 Hoffstetter, the new Exhibit, just for my records, please.  
23 And this will be Exhibit 7-Victor. I'll make copies --  
24 better copies, perhaps, if we need to. If you could just  
25 identify what that is.

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1                   CHAIRMAN GOGLIA: The source document. I think  
2 he did already, saying the overhaul manual.

3                   HEARING OFFICER HILLDRUP: Well, I just want -- I  
4 didn't get it.

5                   MR. HOFFSTETTER: It's the DC-8 overhaul manual,  
6 chapter 2716.1 page 11 and 12.

7   (The document presented, marked  
8   for identification as Exhibit  
9   Number 7-V, was identified.)

10                   HEARING OFFICER HILLDRUP: Thank you. That's all  
11 I had.

12                   CHAIRMAN GOGLIA: Okay we will recess for one  
13 hour until 12:35.

14   (Whereupon, at 11:34 a.m., the hearing was  
15 recessed, to reconvene at 12:35 p.m., this same day, Friday,  
16 May 10, 2002.)



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1 A F T E R N O O N S E S S I O N

2 12:44 p.m.

3 Whereupon,

4 THOMAS IAN WOOD

5 was called as a witness, and first having been duly sworn,  
6 was examined and testified as follows:

7 HEARING OFFICER HILLDRUP: Could you please state  
8 your full name and address for the record, please?

9 THE WITNESS: Thomas Ian Wood. [REDACTED]

10 [REDACTED] Ohio 45424.

11 HEARING OFFICER HILLDRUP: Your current position

12 and employer?

13 THE WITNESS: Current position is aviation  
14 consultant.

15 HEARING OFFICER HILLDRUP: So you're self-  
16 employed?

17 THE WITNESS: That's correct.

18 HEARING OFFICER HILLDRUP: Could you briefly

19 review your aviation-related experience?

20 THE WITNESS: Certainly, my aviation career  
21 started in 1967 at which time I entered the Air Force, spent

22 seven years. Served a tour in VietNam at that time, got out  
23 of the Air Force, continued my pursuit of a 121 airline  
24 career. Went to college at that time, got a degree and my  
25 A&P certificate. Went to work after that college degree and

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1 certificate were received for American Trans Air in  
2 Indianapolis, Indiana as the director of quality control,  
3 which I served in that position for nearly seven years.  
4 Left there, went to World Airways as a director

5 of quality control, was promoted at World to senior director  
6 of maintenance. Left World, came to Emery. Hired in as the  
7 director of quality control for a startup airline, so I was  
8 the singular person in quality control from the beginning.

9 In my Emery career, the company allowed me to be  
10 very interactive with the FAA and the industry, as was very  
11 significant to Emery at that time because of the fact we

12 were the second largest DC-8 operating fleet in the world,  
13 UPS being the largest at that time. So we could see right  
14 away the very significant importance of being involved with  
15 the maintenance program, development -- AD developments, so  
16 forth and so on.

17 My initial introduction into working with Douglas  
18 on model task force was with the DC-8 aging aircraft program

19 in which I was elected on model task group for the CPC  
20 program, also the -- after that time, the structural  
21 inspection program. Worked in the development of those

22 programs to start to finish. So, what that meant also was  
23 as a carrier of the DC-8 -- as the second largest carrier of  
24 the DC-8, we inputted a lot of data on statistics of our  
25 aircraft, the operations, so forth and so on, to help

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1 develop those programs, so it was -- that it was applicable  
2 to what the FAA and the OEM and the operators all  
3 collectively wanted, together.

4 After -- also during that period of time,

5 actually back in the middle 80's, I was very fortunate also,  
6 at American Trans Air, they allowed me to be industry  
7 active, to which I was one of five carriers that got  
8 together that started the coordinating agency for supplier  
9 evaluation group, better known as CASE. I served as a  
10 member for over 15 years. I was on the board of directors  
11 for CASE for over 11 years, to which when I finally felt

12 like I paid my dues to that organization, I served a tenure  
13 as the president of that organization.

14 Also, in the middle 90's there was the concern of  
15 the conversion -- AD concern of the conversion of the  
16 passenger aircraft to all cargo, so there was a 727 AD front  
17 action come forward to address that. The DC-8 operators, of  
18 which I was one of those, obviously, the STC holders, and

19 the FAA developed a team which was called the DC-8 joint  
20 task force team to which we would collectively work together  
21 to start the development of the review, the analysis,

22     whether the AD needed to be complied with or developed,  
23     clear through the process which the AD was developed and the  
24     joint task force team ended up providing the writings for  
25     the particular AD itself.

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1                   There was several other things that I was  
2 involved in with regard to leadership, but most of all,  
3 interaction with the industry and the FAA, and also the OEM,  
4 which was always my primary focus.

5                   HEARING OFFICER HILLDRUP: Thank you very much.  
6 Just follow up. Could you tell us when you joined Emery and  
7 when you left Emery?

8                   THE WITNESS: Yes, I can. I joined Emery in  
9 December of '89, and left in November of 2000.

10                   HEARING OFFICER HILLDRUP: Thank you. Mr.  
11 Carbone will be doing the questioning of Mr. Wood.

12                   DIRECT EXAMINATION

13                   BY MR. CARBONE:

14                   Q     Good afternoon, Mr. Wood. You're director of  
15 quality assurance, quality control and training, is that  
16 correct?

17                   A     At that time, yes, I was.

18                   Q     Do you happen to remember what the reasoning was

19 behind Emery transferring its certificate?

20                   A     Would you like a reason? A specific reason?

21                   Q     Yes. A specific reason would be fine.



22           A     Probably the most key position would be just for  
23 mere logistics in working closer with the FAA.  Because even  
24 though we did have a good relationship with the San Jose  
25 office, we, Emery, traveled to San Jose quite frequently.

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1 We just -- we adjusted, like several other air carriers have  
2 adjusted with regard to the same certificate transfer. And  
3 it was specifically set up to promote interaction with the  
4 FAA to which it did do that.

5 Q Do you feel that this move had interrupted any  
6 oversight that the FAA had for Emery?

7 A Interrupted the FAA oversight?

8 Q Well, FAA watching Emery -- not watching them,  
9 but keeping tabs on them. Do you think that this  
10 interrupted that process?

11 A No, in fact the Great Lakes regional office was

12 very, very supportive in that matter. The regional manager  
13 in fact was one of the key supporters in providing, a year  
14 prior to removal of certificate, a very, if you will, behind  
15 the scenes coordination, to make sure there was no gap in  
16 the particular coverage of FAA oversight of Emery. And that  
17 was done by the primarily the geographic -- the new  
18 geographic assignment to the Cincinnati office, which

19 assigned them to the oversight of Emery. And the newly  
20 elected PMIs, in fact, that I worked with, prior to the  
21 certificate move, as much as two or three months -- we

22 interacted -- they'd come up to the office and visited so  
23 there was a promotion there. There was a concern there,  
24 possibly, on Emery's side, you know, we don't want a gap  
25 here, and that was collectively, as a lot of other things

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1 done with the Great Lakes and San Jose office. It was  
2 collectively communicated.

3 Q You were the FAA liaison, correct?

4 A That's correct.

5 Q How did you feel working with Mr. Camden? Harold  
6 Camden?

7 A Very well. Harold and I had a previous  
8 relationship, when I worked for World. Harold had -- Harold  
9 was the PMI of World Airways when it was located in Oakland,  
10 California, so Harold and I's relationship actually started  
11 at that time, and it continued to promote even better than  
12 what we had started.

13 Q On Exhibit 17-Zulu, your interview. I was  
14 reviewing the transcripts, I'm just kind of curious about  
15 something. You had stated that Mr. Camden had complimented  
16 your VP on a significant turnaround by Emery, is that  
17 correct?

18 A Can I look at that?

19 Q Yes, page 19.

20 A What was the number again, please?

21 Q Exhibit 17-Zulu.

22           A     What page were you on, Mr. Carbone?  
23           Q     Page 1-9.  
24           A     Okay, I'm there.  
25           Q     I think it's about half way down, you had said --

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1 you said you wanted to make something part of the record,  
2 that Mr. Camden had complimented your VP on significant  
3 turnarounds.

4 A No, on page 19 that I'm looking at, the very

5 first question at the top of the page says, "Your  
6 participation in the CASE program -- how many particular  
7 vendors ..."

8 Q I'm sorry, about half way down. "Prior to that  
9 occurring, the principal maintenance inspector had met  
10 several times with the vice president of this corporation  
11 here and complimented him on the areas that he had seen in

12 the past."

13 A I'm on page 19, and the first question at the top  
14 of the page, line six, says, "Your participation in the CASE  
15 program, how many particular vendors you normally audit."  
16 Are you on that page?

17 Q Are these out of sequence. I'm on page 19 on the  
18 transcript. I don't know if it's the same number --

19 A It's not.

20 Q It's not. Okay. Gentlemen, from ... by three,  
21 or help me. Should have the number at the top, top right.

22           A     Yes, I'm reading it now.  Yes, I see that  
23     statement.

24           Q     Is that -- do you have anything to -- was there  
25     any -- how was this information relayed to you?  For the

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1 record, I'm just trying to understand how was this  
2 information relayed to you from the VP?

3 A Okay, well the document that we're -- that you  
4 and I are reading is part of it -- part of that occurring --

5 "The principal maintenance inspector had met several times  
6 with the vice president of this corporation here and had  
7 complimented him on areas that had been seen in the past  
8 that needed improvement, and in fact the company applied  
9 that improvement and that he had noticed turnarounds --  
10 significant turnarounds and improvements in several areas of  
11 their own concern." These gentlemen. And your question to  
12 me is how was this communicated to me?

13 Q How was this relayed to you, yes.

14 A Either by the vice president, or personally by  
15 Harold as Harold and I were assigned to a task team in  
16 approximately March of 2000 by a visit from Great Lakes  
17 office, and Harold and I worked specific issues -- not only  
18 specific issues of a normal transition of a certificate to a  
19 new PMI, but any other open issues that may have come up.  
20 So I probably -- I either heard it from the VP himself,  
21 and/or I worked the subject matter directly with Harold.



22           Q     But was that written -- was that a letter or  
23 anything?

24           A     No.

25           Q     Was there any hard copy to that? That was just

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1 word of mouth?

2 A There were several letters exchanged from the  
3 Cincinnati office and Emery, but without reviewing those I  
4 couldn't be sure.

5 Q Exhibit 17 CC -- Charlie Charlie -- and  
6 obviously, it's not going to be the same page. Here it says  
7 21. Mr. Camden stated that Emery was actually moving  
8 towards improvement, but that you were moving too slowly.  
9 Can you give your opinion on that?

10 A No, Mr. Carbone, I can't because I said in the  
11 interview -- and I don't know what period of time, excuse  
12 me, that he may have been referring to. I don't know  
13 whether it was the time of the certificate transfer. I  
14 don't know whether it was the time -- I don't know that time  
15 period. The only thing I do know is the time that I did  
16 work directly with Mr. Camden, there was never a concern of  
17 too slow because, in fact, the FAA PMIs had put together,  
18 for their office manager, a three year business plan, for,  
19 if you will, the transition of the certificate to them, for  
20 them to be able to go completely through all the manuals, to  
21 review all the procedures and the normal occurrence once a

22 certificate gets transferred. That's the process.

23 Q The reason I'm asking is because he had concern  
24 with your MPPM as far as being a functional document. Did  
25 you agree with this assessment or did you feel the MPPM was

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1 a functional document?

2 A I agree and I would state at any time that it's a  
3 functional document. Harold's personal concern as relayed  
4 to me was he -- he agreed that it was acceptable because in  
  
5 the first month of the transition of the certificate, the --  
6 Harold, the assistant PMI, the two assistant PMIs and  
7 myself, and an individual from engineering -- a manager from  
8 engineering, in preparation for an oncoming RASIP inspection  
9 -- we went in a room and set down for nearly three weeks,  
10 and what we done in that room is we looked at MPP page by  
11 page, regulation by regulation, and went through the  
  
12 complete UPP. Any suggestions made by Harold at that time,  
13 or recommendations, we reviewed and in case of this review,  
14 we placed them all in there and that become revision 21.

15 So Harold, and the office itself, accepted the  
16 MPP as a compliant document to provide adequate procedures  
17 to which in the past two years was also measured by several  
18 NASIPs DOD inspections, to which it had a compliant history  
  
19 of being a satisfactory document. Now I can't go -- I'd  
20 like to stop right now, but I can't. Why then was there  
21 such a concern?

22                   There was a new standard recently been introduced  
23   into the industry through the ATOS program and the CSET (ph)  
24   and in those standards it did require more descriptive  
25   procedures with regard to functionality of processes.  But

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1 the procedure that -- MPP that Emery had in place was a  
2 standard 121 airline policy procedure manual, which was even  
3 back in 1995, was requested by the DOD to use for training  
4 for their inspectors.

5 Q I have from your response from Mr. Hagquist had  
6 sent the RASIP responses from January 2000, and the finding  
7 was that the maintenance -- "the MPPM appears to be mostly  
8 policy, very little procedure." That was a RASIP response,  
9 or a RASIP finding.

10 A Do you have --

11 Q Pardon me?

12 A Do you have the answer to that in the document  
13 you're looking at?

14 Q Yes, I do.

15 A Can you tell me what you're looking at?

16 Q It's finding 2-3-11, it should be under Exhibit  
17 17-Hotel?

18 A The Exhibit?

19 Q 17 -- 1-7-Hotel.

20 A Hotel. This, in fact, --

21 Q I'm sorry, I may have the wrong --

22           A     Yes, there's another Exhibit that has I believe  
23 what you may be referring to.

24           Q     Okay, 17 November November. I apologize.

25           A     Okay, I have that Exhibit, Steve. Can I ask what

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1 page you're on.

2 Q It should be the cover letter, finding 2-3-11 and  
3 then RXA response.

4 A What page is the response on?

5 Q You've indicated these by an arrow with the  
6 responses, but that one doesn't have a response.

7 (Pause.)

8 Q I want to bypass that one, it never made the  
9 docket. Alright. For what reason would Emery perform a  
10 phase or sequential B-check?

11 A The primary reason why we'd done it was the good  
12 common sense reason. If we increase exposure of looking at  
13 the aircraft, my memory -- the interval by the OEMP Douglas  
14 manual -- and I'm going to give you -- I'm ont going to give  
15 you a specific number because my memory's not that good  
16 today, but let's say the OEMP says the interval for the B-  
17 check is 450 hours, that was in fact, Emery's program where  
18 we performed a complete B-check every 450 hours. We also

19 had A-checks at that time which was a less of an inspection.

20 What we'd done was to increase reliability of our  
21 aircraft and to really be able to totally take advantage of



22 all the ground time, was we segmented that 450 hour check,  
23 but -- into lesser checks, like 133 hour segments -- but the  
24 actual task to perform 450 hour item was not exceeded. So  
25 what that'd done was, if you will, we took a B-check item

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1 that was required to be done and done that, and then in  
2 another area, since the aircraft was down for inspection,  
3 you would go in and do a heavier -- you would spend more  
4 time in that area doing a heavier visual inspection, just

5 for the simple fact that you were down, scheduled down for a  
6 B-check.

7           What in fact that provided for Emery's DC-8,  
8 which was an aging aircraft, it did provide increased  
9 dispatch reliability of the aircraft and obviously, that's  
10 the single - one of the single highest goals of a  
11 maintenance program is to produce an aircraft at the gate  
  
12 that dispatches when it's required.

13           Q     Does this mean that each phase is different from  
14 the next one or the one previous?

15           A     Does it mean it's different?

16           Q     If you do a B-3, is it different from a B-2?

17           A     It's -- yes, it is different.

18           Q     It is different. I'm going to shoot ahead to

19 November 25th, when Emery discovered -- they had a concern  
20 with the elevator dampers -- here I go with the dampers  
21 again. Did you approach either Complete Controls

22 Incorporated, CCI, or Tennessee Tech Services, TTS, to  
23 address the issues?

24 A Both.

25 Q And when did you address them?

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1           A     At that time.

2           Q     Exhibit 7-Papa.

3           A     I have it.

4           Q     Is this the letter to which you referred when you

5 talked to TTS?

6           A     This -- yes, this was one of the formal letters  
7 that I sent, that's correct.

8           Q     I'm saying is this the first correspondence?

9           A     No, this is the second correspondence.

10          Q     Okay. Did you say after your response, you did  
11 talk to CCI about this?

12          A     About --

13          Q     Did you correspond with CCI about the dampers?  
14 Did you say that you did correspond to CCI concerning the  
15 dampers? Send them a letter or phone call?

16          A     I don't think we're talking about the same  
17 subject. CCI did not overhaul the dampers.

18          Q     They overhauled the elevators, didn't they?

19 Didn't they overhaul the elevators?

20          A     Okay, I'm sorry, yes, they did. I stand  
21 corrected.

22 Q Did you address it with them?

23 A Yes, we did.

24 Q At that time?

25 A Yes, we did.

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1           Q     How would you define an inspector? RII  
2 inspector?

3           A     He's -- RII inspector is a person who  
4 specifically reports to the quality control of a 121

5 airline, is -- has experience and is trained, and the  
6 training requirements meets those training requirements on  
7 an annual basis.

8           Q     Were there specific quality assurance inspectors  
9 in Dayton that formed their own department?

10          A     Yes, there were.

11          Q     Could you -- I'm sorry.

12          A     Go ahead.

13          Q     How many stations had inspectors that were  
14 strictly quality assurance?

15          A     As far as being quality assurance reporting to  
16 the manager of quality control, there was none. The  
17 individuals at the line stations were designated RII  
18 inspectors that were trained to meet that task, and whenever

19 they performed a function under the RII requirement, they  
20 then would report to the director of quality control.

21          Q     But you said Dayton did have its own specific

22 group?

23 A It did.

24 Q Would you have any need to utilize an inspector  
25 at Dayton that was anyone but quality assurance to do an

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1 inspection?

2 A Yes, we did.

3 Q For what reason?

4 A For the mere reason to cover the production

5 requirements of the airline.

6 Q Are you talking about quantity of inspected items  
7 needed during the night?

8 A Correct.

9 Q On the particular night of November 25th -- or  
10 actually the morning of November 25th, you used a lead as a  
11 QA inspector. Is that normal that you would use somebody on

12 -- who is the lead for the mechanic at the time as an  
13 inspector?

14 A If the inspector was the designated RII  
15 individual, then I would say yes.

16 Q But wouldn't you tend to use the QA department at  
17 first?

18 A No, because the QA or QC, which is actually what

19 it was, their functionality did not physically take them out  
20 to the flight line even at Dayton, to perform inspections on  
21 aircraft.



22           Q     I'm sorry, they didn't take them out to the  
23 flight line?

24           A     That's correct.

25           Q     What would they be utilized on?

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1           A     They were utilized on several auditing of  
2 agencies, auditing of the line stations, fuel farms,  
3 auditing of the paperwork and all the several other facets  
4 of the airline.

5           Q     Maybe I need to be clearer.  When you say you  
6 have an RII inspector at Dayton --

7           A     Correct.

8           Q     -- you're talking about somebody who does RII on  
9 an airplane.  Do you have an RII inspector department?

10          A     We have a quality control department.

11          Q     Right, but those people in quality control, the

12 inspectors, they would not go on the line to inspect items?

13          A     Not unless there was a special need for them to  
14 go out.  On a -- what I'm trying to tell you is on a routine  
15 shift by shift operation, at any line station, the required  
16 inspection items were performed by the designated required  
17 inspection trained personnel.

18          Q     Was it quality assurance then that was

19 responsible for auditing daily paperwork from the field?

20          A     That's correct.

21          Q     Base maintenance and vendor maintenance?

22           A     That's correct.

23           Q     Did TTS or any other vendors make recommendations  
24 to revise the work cards and/or maintenance procedures?

25           A     During the time -- we started using TTS for heavy

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1 checks in December -- or in January of 1999, to which they  
2 performed roughly four or five C-checks, and then their  
3 first D-check, which is the accident aircraft. At -- during  
4 that year, their -- to my knowledge I didn't -- myself as

5 being the director of quality control, I didn't receive any  
6 formal notice of work card changes.

7 Q Okay. How efficient was the paperwork auditing  
8 compliance?

9 A I, through the years and through the measurement  
10 of that record system, it was very efficient.

11 Q What problems did you -- did you run into any

12 problems with QA? In the QA department, were there any  
13 problems that needed to be resolved?

14 A Not that I know of.

15 Q How often were inspectors required to requalify  
16 on their special training?

17 A The RII inspectors, annually.

18 Q And how would you -- how would you record this?

19 A It was recorded -- we had a specific form for  
20 that training and for that reauthorization because you had  
21 to receive the training to be reauthorized or continue to be

22 authorized to be able to receive that. So that particular  
23 training document and authorization is in that mechanic's  
24 training records.

25 Q And when you say the training records, are you

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1 talking about the certificate record summary?

2 A I'm talking about -- that's part of it -- the  
3 training record package, that's correct.

4 Q Well, what else would it be shown on? If I was

5 an RII and I was requalifying every year, where else would  
6 it show?

7 A It would show on an employee -- I don't recall  
8 the name of the form, but it would show on an authorization  
9 form, published by Emery, that shows the authorization of  
10 all the mechanics.

11 Q Could you please refer to 17 Romeo Romeo?

12 MR. HAGQUIST: Mr. Chairman, Emery is going to  
13 object to the use of any Exhibit which reflects FAA  
14 investigative or enforcement material unless the  
15 contemporaneous Emery response to that material is entered  
16 as an Exhibit and available to the witness.

17 CHAIRMAN GOGLIA: Okay, and do we have copies,  
18 Mr. Hilldrup of the Emery response?

19 HEARING OFFICER HILLDRUP: We do. We'll have to  
20 have some identification as specific as possible, I think.  
21 I believe all the parties were provided this information. We

22 certainly have some information as well, but it may take a  
23 few minutes to find it, to identify the specific pages. If  
24 Emery could do that?

25 CHAIRMAN GOGLIA: Okay, we'll take a few minutes.

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1 If you have another area of questioning that you'd like to  
2 pursue and we'll come back to that.

3 MR. CARBONE: Sure.  
4 BY MR. CARBONE:

5 Q Were the RII training classes -- I'm sorry --  
6 excuse me --

7 MR. HAGQUIST: Find this response before we  
8 continue.

9 CHAIRMAN GOGLIA: Certainly, we have all the time  
10 in the world.

11 THE WITNESS: Mr. Carbone --

12 CHAIRMAN GOGLIA: For the benefit of everybody in  
13 the room, I've notified the parties that my schedule is  
14 clear for the next week, so we will stay here until we're  
15 done. And while Emery is looking for it, we'll take a five  
16 minute break in case anybody needs to use the facilities  
17 after lunch.

18 MR. STREETER: Mr. Chairman?

19 CHAIRMAN GOGLIA: Yes.

20 MR. STREETER: Are we talking about Exhibit 17  
21 Romeo Romeo? I'm not aware that this has anything to do



22 with any enforcement action, that's what I don't  
23 understand.

24 THE WITNESS: I think there's a  
25 misunderstanding --

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1 MR. STREETER: Alright, maybe that's --

2 CHAIRMAN GOGLIA: Would you -- since we already  
3 have people up and running, we're going to break for five  
4 minutes. Sort it out and we'll talk about it in five

5 minutes.

6 (Whereupon, an 11 minute recess off the record  
7 was taken.)

8 CHAIRMAN GOGLIA: Now, it's working. Okay, Mr.  
9 Carbone, would you identify the Exhibit again?

10 BY MR. CARBONE:

11 Q Okay, it's 17 Romeo Romeo. Do you have that, Mr.

12 Wood?

13 A I have that.

14 Q Can you point out to me where the training is on

15 this? Is this your certificate record summary? If I were

16 to look for training for an employee, where would I look?

17 Would I look at this item?

18 A That's true, this would be one of the things that

19 you would look at.

20 Q Okay, but if you were doing an audit, what would

21 you be looking for?

22           A     I'd be looking at this list compared to what's in  
23     the training record itself, and making sure that they  
24     matched.

25           Q     So in other words, what you would do is -- is

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1 this the training record you would go against?

2 A If that is in fact the training record, yes.

3 Q Okay. This is Mr. Hall. This is his training  
4 records, what you sent to us. I'm not going to go through

5 it for obvious time reasons, but I did go through the  
6 summary, and I can't find but maybe one or two items that  
7 are in that package that is on here. Can you explain why

8 none of the -- a lot of the information is missing from  
9 this? I have nothing on the fourth page as far as hours  
10 trained. I have very little on the third page as far as  
11 hours trained. Is baroscope -- is that something retrained  
12 every year as part of an RII?

13 A That's -- no, I don't believe baroscope training  
14 was annual requirement RII. What I have in front of me  
15 right now, though, -- some of the things you're looking  
16 for -- all of the things you're looking for is in what you  
17 have in Inspector Hall's records. His RII training. His  
18 authorization -- a copy of his authorization card, and the

19 whole nine yards.

20 Q I understand that. But if you're doing an audit,  
21 your inspectors are not going to come up and look through

22 this entire package to verify his or her records are  
23 accurate, would they?

24 A Yes, they would.

25 Q How many mechanics do you have? Or did you have

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1 at Emery?

2 A About 340.

3 Q And they're going to look 340 of these packages  
4 during an audit?

5 A Yes, they would. We done an audit of the  
6 aircraft training records, and so did the NTSB during their  
7 visits.

8 Q What are the various places that paperwork being  
9 placed in to records be stored or placed?

10 A What type of various paperwork --

11 Q B-2 checks?

12 A The aircraft records section.

13 Q Who handled the training for the vendors?

14 A Quality control.

15 Q And what were the -- quality control handled the  
16 training for the vendors? Did you bring your manuals and  
17 train the vendors, say TTS?

18 A Yes, we did.

19 Q What about for systems?

20 A No, we didn't.

21 Q What would a 40 hour systems cost be comprised

22 of?

23 A Forty hour DC-9 systems cost?

24 Q Yes, please.

25 A It would be comprised of a description of the --

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1 each ATA -- primary ATA system of the aircraft and its  
2 operations and functions.

3 Q And you cover the whole airplane? Those ATAs in  
4 40 hours?

5 A That's correct. Well, we cover the ATA chapters  
6 that are outlined in that -- in that training document.

7 Q Are you supposed to be covering troubleshooting?  
8 Troubleshooting techniques taught in there?

9 A I wouldn't know. It's been quite some time since  
10 I reviewed that training material.

11 Q The MPPM states that you're supposed to be  
12 teaching troubleshooting techniques --

13 A And we did.

14 Q -- and I looked in the book and I didn't really  
15 see anything. How is this covered?

16 A It was covered by specific training courses, I  
17 believe. We provided a number of those to you.

18 Q Right, I received the manuals, and what I'm

19 saying is that 40 hour course, I looked through several of  
20 the manuals and I couldn't find anything on troubleshooting.  
21 Where is that supposed to -- because according to the MPPM,



22 troubleshooting and maintenance are supposed to be taught in  
23 the courses.

24 A Uh-huh.

25 Q And I couldn't find anything, and then I saw

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1 things on familiarity, what a valve does, what an actuator  
2 does, but not anything as far as maintenance or  
3 troubleshooting.

4 A If I recall, what you had requested at the

5 prehearing was the maintenance training courses on those  
6 particular ATA chapters, to which we did provide you even  
7 over and above that.

8 Q Correct.

9 A But with regard to providing you all of the very  
10 comprehensive training program that Emery had, we didn't  
11 provide that.

12 Q So you would have provided something else in that  
13 40 hours?

14 A Pardon me?

15 Q You're providing something else in that 40 hours  
16 in lieu of what I got?

17 A Correct.

18 Q Were rotatable parts -- rotatable aircraft part

19 numbers with serial numbers traced to specific positions in  
20 the aircraft? If you had a GCU in the number two position,  
21 would you be able to find out from some record that that GCU

22 is in that position on that aircraft?

23 A We had a tracking system in our computerized  
24 material planning program, and the serialized components  
25 were, yes, tracked by aircraft by installation date and

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1 time. So, yes, you would be able to go back into that  
2 system and detect when it was tracked.

3 Q How many people did you have in the records  
4 department for aircraft maintenance logs, B-2 checks? How

5 many people in that records department?

6 A From memory, I would say overall there was 15.

7 Q Fifteen. And can you tell me how long it would

8 take -- what the process was by which the paperwork made its  
9 way back to the records department?

10 A From what point?

11 Q From the mechanic signing off the item.

12 A To?

13 Q Recording it.

14 A I'll use the example of Dayton. If the

15 maintenance paperwork was performed at Dayton, obviously  
16 it's normally in the evening, so that would be the next day  
17 that it would come to the aircraft records section, which  
18 would first go to quality assurance for auditing.

19 Q And how long would this process take?

20 A It varies. If the paperwork comes through QA and  
21 there's no errors, there's no concern, then it's an

22 expeditious process. If there's error corrections,  
23 different things like that, then that would lengthen out the  
24 process.

25 Q Did your department maintain responsibility of

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1 overseeing the auditing of paperwork from Tennessee Tech?

2 A Yes, we did.

3 Q And how was this routed back to the vendor for  
4 correction?

5 A Again, it goes directly to the QA inspection  
6 reps, which they do 100 percent audit of all paperwork  
7 performed against even the requested task items. If errors  
8 are found in that particular paperwork, then the FAA  
9 approved error correction procedure that we had, it was a  
10 formal process to which a form is filled out with that  
11 original document, and then that's returned, in what you

12 just said, Tennessee Tech, for correction of that paperwork.

13 Q And how long is a work package kept for? Say a  
14 B-check?

15 A Until it's replaced by a light check.

16 Q And what would be considered a light check?

17 A Another B-check.

18 Q Another B-check? I thought you said before that

19 a B-check sequence check was different. Each sequence, B-  
20 1,2,3, and 4 -- weren't they different?

21 A They were only different in the fact that it

22 broke down the entire inspection program.

23 Q So if a B-3 was done, a B-2 paperwork would have  
24 been disposed of?

25 A That was the procedure, that's correct.

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1           Q     But you didn't repeat the cards in the B-3 that  
2 you had in the B-2, so how could that be --

3           A     But we had, in the inspection program, obviously,  
4 the cards that was performed.

5           Q     I understand that, but what I'm saying is that if  
6 you have a sequence check, and you do a B-2 check, when you  
7 do the B-3 check, the cards are not the same. Is that  
8 correct? They're not all the same?

9           A     Yes, they're not all the same. That's correct.

10          Q     So how could one override the other, if they're  
11 not the same?

12          A     It's -- in the fact of the accident aircraft,  
13 they were all there.

14          Q     What was all there?

15          A     B-1, B-2, B-3.

16          Q     According to the -- according to the addendum for  
17 the maintenance factual report -- and if you'll give me one  
18 second, I'll find it -- it's Exhibit 11-Hotel.

19          A     I have that.

20          Q     You have that. According to the addendum, it  
21 says that the B-2 signed work cards had been previously



22 discarded per EWA maintenance policy and procedures  
23 retention of records program.

24 A That's correct.

25 Q Did you not just send us the B-2 cards?

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1           A     That I did.

2           Q     So I guess what my question is is where have  
3 these been for the last two years?

4           A     In locked down records.

5           Q     In locked down records.  You yourself were part  
6 of the investigation group for maintenance?

7           A     That's correct.

8           Q     And did you not know, as director of records and  
9 part of the group, where these records were?

10          A     No, actually I'm the person responsible for this  
11 process, but the story is this.  When the records were

12 reviewed -- in fact, I was part of that committee back in  
13 February and March, and there was no finding so to speak, or  
14 challenges of the record process.  In October of 2001, the  
15 maintenance group chairman had requested for -- as what this  
16 letter -- your letter is referring to -- a copy of those  
17 signed-off B-1, 2, and 3 checks.  I was working as a  
18 consultant for the company at that time and did know where

19 the location of the locked down records were -- they were in  
20 multiple boxes, and I, myself, physically went back and went  
21 through those records, and I could locate -- we actually

22 took the records, if you will, out of the file cabinets, and  
23 picked the files up and set them down in a box so that we  
24 would leave them in like recommendation -- or like example.

25 When we'd done that, I went into the files to

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1     which those were to be kept in, and I found the B-1 --  
2     signed off B-1. I found the signed-off B-2. I found the  
3     non-routines -- or signed-off B-3. I found the non-routines  
4     for the B-2, but I did not locate in that file, the signed-  
  
5     off B-2 card. So then I went to the current records  
6     management people there at the time and asked where could  
7     this be? Could it be misplaced? So forth and so on, and at  
8     that time, per the verbiage that's on this letter, the  
9     assumption was that it was removed as a light check was  
10    performed and it was not in the record.

11                 By your request, I believe it was three weeks

12    ago, Mr. Hagquist, in fact, asked -- he said, you know, we  
13    need to go talk to aircraft records manager and pursue this  
14    search again, because we really have been extremely faithful  
15    in providing anything and everything that the NTSB has  
16    requested through this whole process, beginning in February  
17    of 2000.

18                 So in that search, I went to the aircraft records  
  
19    manager, asked her -- I obtained signed-off B-1, B-3 checks  
20    from this file where they were meant to be kept. Where else  
21    could that other check be? Her response to me, first

22 response was did you check the error correction file, and  
23 that file would have been kept at the QA area -- Quality  
24 Assurance auditors -- they actually maintain that file until  
25 it's corrected, and then that's handed back to records. The

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1 record's updated and put into the file.

2 So the lady and I went back again to the locked  
3 down files, went through the file that I had looked in, and  
4 then started searching through the other files, to which we

5 found the physical folder of the error correction file from  
6 quality assurance that had signed-off B-2 check card in it  
7 with a letter of correction from placed on top of it, to  
8 which I sent to you. And that's the occurrence of that  
9 situation.

10 Q So am I to understand that two years ago, when  
11 these were asked of you to bring them forward, you could not

12 find them two years ago.

13 A They weren't asked of me two years ago. They  
14 were only asked of the company in October of 2001.

15 Q Were you on the maintenance group?

16 A That's correct.

17 Q So were you not generally asking for those things  
18 as part of the group, as part of the records for Emery to

19 bring forward as part of the accident investigation?

20 A And we did do that at that time.

21 Q But it didn't happen until two years later that

22 these records became available again..

23 A I mean they were never asked for until two years  
24 later.

25 Q Well, no. I have it here. I have "the signed

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1 off work cards for B-1 and B-3 checks were made available  
2 for review." This is on the addendum. This is part of what  
3 you agreed to as part of the group when you initialed the  
4 final report. "The B-2 signed work cards had been previously  
  
5 discarded." But now two years later they have -- they  
6 reappear again. And I'm just kind of curious why they  
7 appear now as opposed to two years ago.

8 A This document you're reading from, when they were  
9 not available to send to you, was September --

10 MR. HAGQUIST: Mr. Chairman, with all due  
11 respect, Mr. Wood responded to this question a number of

12 times now.

13 CHAIRMAN GOGLIA: He hasn't answered it yet.

14 MR. HAGQUIST: I think he gave a rather lengthy  
15 explanation in finding the questioned B-2 cards in the error  
16 correction files.

17 CHAIRMAN GOGLIA: What I'm hearing is that he did  
18 respond to that and how he found it, but he hasn't answered

19 why he didn't pursue a search in the fall of 2000. And it's  
20 a trend. Let me advise Emery right now, that I see a trend  
21 of evasive answers here -- would be non-responsive. So just



22 be conscious of that fact as this hearing proceeds. And  
23 would the witness please answer the question.

24 THE WITNESS: Certainly. Could you ask me the  
25 question again?

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1 BY MR. CARBONE:

2 Q I'm not even really sure how I phrased it. But  
3 as being part of the maintenance group investigation of this  
4 Emery accident, were you not privy to where these records

5 were kept, and why didn't you produce them for two years?

6 A At the initial lock down of the records, and the  
7 review of the records, as I was part of that team, obviously  
8 I had the knowledge of where the records were at. They were  
9 readily available. They were provided to the team and the  
10 team reviewed them. I'm talking in March of 2000. The next  
11 time the -- the next time this record was requested by the

12 NTSB was October of 2001, and the Exhibit that you're  
13 reading from, 11-H, is an answer at that period of time.

14 Q Alright, I'm sorry, you said October 2001 the  
15 NTSB re-asked for these records?

16 A That's correct.

17 Q And why is it that we're only getting it in April  
18 of 2002?

19 A Because it was requested again by you a few weeks  
20 ago, as I mentioned.

21 Q When did you find the records? When did you

22 actually -- I have to understand something -- when did you  
23 actually find the records -- actually find the B-2 check  
24 cards?

25 A Just -- I don't know the exact date that I sent

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1       them to you, but it would be that day. The day that I  
2       located them in the lock down aircraft record files was the  
3       day that I FedEx'd -- actually Mr. Hagquist FedEx'd these  
4       items to you.

5               Q       They were there all the time? And you do  
6       understand that these records, these particular B-2 check  
7       cards were part of the investigation, and that for two years  
8       we didn't have those check cards to use to come to a  
9       conclusion to this accident.

10              A       They were never asked for.

11              Q       In the beginning, those cards --

12              A       They were never asked for by the NTSB until  
13       October of 2001.

14              Q       Mr. Wood, I'm looking at the addendum to the  
15       maintenance records Chairman ...tual.

16              A       And I'm familiar with that.

17              Q       Alright, along the same lines, Mr. Hagquist had  
18       sent -- I'm sorry -- Exhibit 17-Uniform. Mr. Hagquist had

19       forwarded the B-2 check on April 24, 2002. When we had  
20       received the first copy, one of the check cards was missing  
21       and I had called up and it turned out to be coincidentally,

22 the B-009 card.

23 A Correct.

24 Q Was missing. Also in its place was a blank piece  
25 of paper. Okay? Can you tell me why it was not sent? Why

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1 that particular card, which turned out to be a very  
2 important card was not sent with the regular package?

3 A I can tell you exactly why that card wasn't sent.  
4 When the original B-2 check was taken out of the error

5 correction file, the B-009 card, I believe it was, I removed  
6 -- it was laying on the desk I was working at. I removed  
7 that card to go down to look at the maintenance training  
8 records of the individual that signed that off -- the actual  
9 original card. When I came back to my desk, I inserted that  
10 card back into the deck, handed it to a lady to be copied.  
11 It was copied, and then we forwarded it to you. When Dick -

12 - when I come in the next day and Dick said the card is not  
13 there, I said, it has to be there.

14 So I went back to the original card deck that's  
15 locked up in the records, pulled it out and what I had done  
16 is inadvertently, whether this is a trend or not, turned the  
17 page over and so that's the reason it had copied on the  
18 wrong side.

19 Q I'm not going to name the individual personally  
20 for the record, but the individual who did do the B-009 card  
21 that day, you did say you reviewed his records? His

22 training records? You just said you checked his training  
23 records.

24 A I went down to check, but as far as doing a  
25 complete review of his training records, I did not.

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1 Q Why did you go down to check them?

2 A Routine.

3 Q Did you find that he was qualified to sign off  
4 that card?

5 A Without looking at his training records, I  
6 couldn't be sure. What I did note, though, that he had  
7 received induct training in January of the previous year.

8 He had worked at Emery with a contract company, that  
9 maintenance contract company that we had there, for some  
10 period of time.

11 Q I'm sorry --

12 A Prior to being hired.

13 Q You say that you went down to check his records,  
14 but you don't know if he was qualified. What did you go  
15 down to check?

16 A Just the basic records, a routine check.

17 Q Basic records.

18 CHAIRMAN GOGLIA: While they're doing that, Mr.

19 Wood, you referred to somebody in aircraft records, the  
20 manager, as her. Her has a name. I wonder if you would  
21 share that name with us.



22

THE WITNESS: Jill Greek.

23

CHAIRMAN GOGLIA: Creek? Like the --

24

THE WITNESS: Greek, like the country.

25

CHAIRMAN GOGLIA: And with so much under you, I

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1 see that you had maintenance training, quality control, as  
2 well as quality assurance and reliability, you have to have  
3 some assistance. Were they all managers? Who was the next  
4 under you dealing with those respective areas?

5 THE WITNESS: They were all managers.

6 CHAIRMAN GOGLIA: Well, let's name the  
7 individuals. Who had maintenance training?

8 THE WITNESS: Bruce Robbins.

9 CHAIRMAN GOGLIA: And quality control?

10 THE WITNESS: Ed Jones.

11 CHAIRMAN GOGLIA: And assurance -- quality

12 assurance?

13 THE WITNESS: Ed was also over that at the time.

14 CHAIRMAN GOGLIA: And reliability? Who ran the  
15 reliability program?

16 THE WITNESS: I'm trying to knock that one out.

17 I don't -- I've got his face, I don't have his name, sir.

18 CHAIRMAN GOGLIA: Well, would you provide that

19 for us?

20 THE WITNESS: Certainly.

21 CHAIRMAN GOGLIA: And I don't think the folks are

22 ready yet.

23 MR. CARBONE: Yeah.

24 CHAIRMAN GOGLIA: You're ready?

25 MR. CARBONE: Yes.

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1 CHAIRMAN GOGLIA: Okay, carry on, please.

2 BY MR. CARBONE:

3 Q I just want to ask, as the director of QC, why do  
4 you think that it is necessary or allowable to toss a

5 previous sequence card -- a sequence check away when --

6 because if I'm not mistaken, the check card -- the check

7 package that follows has to either supersede or copy the

8 previous check in order for that check to be thrown away.

9 It has to be either an exact duplicate, which means that it  
10 accomplishes all that's done on that check -- for instance,  
11 the B-2 check card -- everything that was accomplished on

12 the B-2 check card, according to the MPPM, you come in with

13 a B-3 check card, everything that is done on the B-3 has to

14 mock or copy what is done on the B-2. How do you justify

15 throwing away a B-2 check card when the two checks are

16 different?

17 A It's -- it was an FAA approved procedure that we  
18 had.

19 CHAIRMAN GOGLIA: Can I --

20 MR. CARBONE: No, go ahead, please.

21 CHAIRMAN GOGLIA: You know, we've been playing

22 this approved and accepted game for a while. Everytime you  
23 submit a revision to your manual in 1999, was that approved?

24 THE WITNESS: To -- to --

25 CHAIRMAN GOGLIA: When you wanted to change your

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1 maintenance manual -- something came up, such as I see three  
2 FCDs that we're going to talk about in a minute -- did you  
3 get those approved by the FAA?

4 THE WITNESS: Yes, sir, I did.

5 CHAIRMAN GOGLIA: You got them approved. 709 --  
6 you know what 709 -- in the recodification of the rules are?  
7 It used to be 609. That means the FAA can call you back in  
8 and requisition you and force you to take the A&P test again  
9 because you don't understand the basic knowledge required to  
10 hold the ticket. And let me tell you something, in my  
11 opinion, you are walking out on that diving board real quick

12 here today. Real quick. Why don't you finish with this  
13 witness and we're going to deal with this in a little  
14 different way.

15 MR. CARBONE: Okay.

16 BY MR. CARBONE:

17 Q I'm going to ask you to look at three Exhibits:  
18 17 Uniform, 7 - O and 7 - K. And this is just something I

19 wanted to touch down before. I'm going to look at 7-0  
20 first.

21 (Pause.)

22           Q     Seven was the log page from November 25th. Well,  
23 my question is -- you still --

24           A     Go ahead. I have 17-0.

25           Q     I'm putting all these three Exhibits together,

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1 because I'm trying to find my own trend here. But I notice  
2 that there is no reference on sign off of reversed dampers,  
3 and I'm kind of curious why this would get through QA, who's  
4 doing the audit.

5 A At this particular time, under Emery's approved  
6 and accepted procedures, the requirement to physically put  
7 the maintenance manual reference was not a requirement at  
8 that time -- for a period of over nine years. The -- it was  
9 however changed by the request of the new PMI, Harold  
10 Camden, and we'd worked up the procedures out of the  
11 regulation of what actually what has to be put down, but we  
12 went to the -- the company went to putting the maintenance  
13 manual reference for all the common sense reasons. But at  
14 this time, and having been audited for a number of years of  
15 using the regulation, that's the reason why that maintenance  
16 manual reference is not there.

17 Q Okay. Can you please look at item 7-Kilo, page  
18 two? This is a D-check card from TTS. This is a D-check  
19 card from TTS that should have gone through your auditing  
20 group.

21 A Did you -- what's the Exhibit number?



22 Q 7-Kilo.

23 A 7-K. I have that.

24 Q Can you tell me what is exactly happening on  
25 lines 2, 3, and 4, because I don't understand who's signing

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1 and if they're stamping over something. And to me this --  
2 how would this have passed through -- how would this have  
3 passed through the auditing?

4 A Sir, we're looking at the first page --

5 Q Page two. Page two.

6 A Page two.

7 Q 6-Alpha-3502? And looking at steps 3 and 4, I  
8 see a stamp over two signatures.

9 A Without seeing the original, I see what you see  
10 now.

11 Q Okay. And I'm going to -- the last thing I'm

12 going to refer you to is Exhibit 17-Uniform, that's 1-7-  
13 Uniform.

14 A I have that.

15 Q And the dates are double stamped. I have what  
16 looks like 1/21 over 1/20 -- can you tell me what date that  
17 was done?

18 A There's -- I could in one of the Exhibits which  
19 represents the log page of --

20 Q I'm not talking about the log page. I'm talking  
21 about looking at this B-check package, can you tell me what

22 day this was done?

23 A From looking at it, I would say the 21st.

24 Q Okay, well, I don't think I could see which one  
25 it was done -- on the 20th or the 21st. But the thing that

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1 concerns me is that all these three items relate back to one  
2 incident, which is the elevators. You have your B-9 card,  
3 which is part of that B-package. Same thing, I don't know  
4 what date it was done. This particular D-check card relates  
  
5 to the right elevator tabs, and this log page relates to  
6 those elevators again. Now you could say that these are  
7 random situations that came up in the middle of nowhere, but  
  
8 I have three that relate right back to the elevators on  
9 079Uniform. And I can't understand how they got passed the  
10 auditing. If you can't look at these things and tell me  
11 what took place on the D-check card, why this was not  
  
12 returned to TTS and what date this B-check was accomplished.

13 A Well, out of all fairness, the 17-U was in the  
14 error correction file. So it was under review, because I  
  
15 also, when I looked at this, I also was concerned with was  
16 it the 21st or was it the 20th. So this document was in the  
17 error correction file to process. The one thing I will -- I  
18 will tell you all that the -- that these cards that we're  
  
19 reviewing that's very difficult to review, have been copied  
20 several times, and with -- I can tell you right here face to  
21 face that the original is much more legible than this.

22 MR. CARBONE: I have no more.

23 CHAIRMAN GOGLIA: Okay, thank you, Mr. Carbone.

24 Mr. Hilldrup, is there anybody else at the technical panel

25 that has a question.

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1 HEARING OFFICER HILLDRUP: Just a couple  
2 questions, and I was looking to perhaps get a copy of the  
3 page of the MPP that talks about the collection of records  
4 and discarding of records, and I haven't gotten it yet, so

5 I'll hold off a minute.

6 DIRECT EXAMINATION

7 BY HEARING OFFICER HILLDRUP:

8 Q But just a couple points going back to your -- a  
9 couple of earlier questions, Mr. Wood, about the transfer of  
10 the certificate and was Dayton the central hub or -- I don't  
11 want to say headquarters, certainly, but was that the main  
12 operation from the beginning with Emery?

13 A From?

14 Q From 1989, roughly?

15 A It was the -- it had always been the hub since  
16 1989. The company's headquarters were in Palo Alto.

17 Q Right, which was the reason for the holding  
18 office -- the certificate holding office being San Jose, is

19 that correct?

20 A That's correct, sir.

21 Q Did Emery request that the certificate be

22 transferred out of San Jose, specifically, or just -- or to  
23 Cincinnati? Do you remember the nature of the request from  
24 a company standpoint? Was it simply, we think it should be  
25 moved out of San Jose, or specifically was it to be moved to

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1 Cincinnati?

2 A The request was formally made to move it to the  
3 Great Lakes region.

4 Q To the Great Lakes region. Okay. Thank you very  
5 much. That's all for now.

6 CHAIRMAN GOGLIA: The witness will not be  
7 released, so we'll have plenty of time to bring him back if  
8 we need him. I guess we'll start with ALPA.

9 DIRECT EXAMINATION

10 BY MR. GUNTHER:

11 Q Mr. Wood, are mechanics limited to the tasks they  
12 are signed on?

13 A The mechanics are trained and authorized to  
14 perform certain tasks, that's correct.

15 Q What about sign offs as a function of the  
16 training?

17 A That would be part of that also.

18 Q Mr. Carbone asked you before about the training

19 record that was provided -- the cover sheet that listed the  
20 number of hours. Your company, if you have somebody that  
21 for instance is authorized to do an RII, and you need to



22 determine whether or not that person is trained and  
23 qualified to do that, how do you guys do that?

24 A There -- as I referenced a minute ago, there is a  
25 maintenance authorization listing to which I provided the

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1 NTSB, and on that particular listing it lists all the  
2 mechanics that Emery has, and it has literally a block in  
3 there for what training and what authorizations that they  
4 have received.

5 Q How do you determine the validity of that  
6 comprehensive list?

7 A That list is a mirror image of the authorization  
8 that is provided and kept in the mechanics' training  
9 records.

10 Q When quality control or quality assurance does an  
11 audit of let's say training records of those mechanics, what  
12 documents were you using for that audit?

13 A When the quality control people went over -- the  
14 manager, in fact, done the audit on the training records.

15 When he would go over and perform that, he'd perform it  
16 roughly every 30 days, so because of the revision of the  
17 training records, it wouldn't put him behind. But when he  
18 would go over to do that, he would check the -- we have a

19 computerized listing of the training that Kent received, as  
20 Mr. Carbone had put in Exhibit. He would compare that to  
21 the current training that's provided -- that was -- a copy

22 of the certificate that's in the maintenance training  
23 records.

24 Q So he's looking at computer records? He's not  
25 necessarily looking at the original documents?

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1           A     He's looking at the original documents.  He bases  
2     -- he actually audits the original document against the  
3     computer list.  That is -- and also he has a listing of  
4     currency with regard to people who are coming due on  
  
5     authorizations.

6           Q     I want to finish it.  I'd like to ask about also  
7     is could you explain to me what it is for somebody to be an  
  
8     RII.  In other words, to have inspection authorization at  
9     Emery's ...

10          A     Emery has, as is in fact, in the guidelines of  
11     the 121 regulation, designated required inspection item  
  
12     personnel.  And they perform, again, the function of  
13     performing those required inspection items that are listed  
14     in Emery's UPP.  They perform those functions by which the  
  
15     training and the authorization they're given.

16          Q     Are they required to have special training?

17          A     Yes, they are.

18          Q     How about requalification?

19          A     Yes, they are.

20          Q     How long have you been with the company?

21          A     I was with the company for nearly 11 years.

22           Q     So you were there before the accident, and then  
23 after the accident?

24           A     Yes, sir, I was.

25           Q     In that time, did the company ever RII any PFEs?

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1 A What's a PFE?

2 Q Professional flight engineer.

3 A Did we authorize a PFE to be an RII?

4 Q Without initial training, without recurrency?

5 A No, we did not.

6 Q Did the company at any time issue cards to PFEs?

7 A No, we did not.

8 Q That gave them RII authorization without that  
9 training?

10 A No, sir.

11 MR. GUNTHER: I have no further questions.

12 CHAIRMAN GOGLIA: Thank you. The Boeing Company?

13 DIRECT EXAMINATION

14 BY MR. BREUHAUS:

15 Q Yes, thank you. Mr. Wood, just a few questions  
16 along the -- having to do with the B-checks that we've been  
17 discussing throughout the day. Emery has B-checks broken  
18 down into the B-1, 2, 3, and 4 that can be done out in line  
19 maintenance.

20 A That's correct.

21 Q And do you also do B-checks in heavy maintenance

22 if the opportunity arises?

23 A If it's required.

24 Q And would that still be broken into the same kind  
25 of a break down, or would it be a complete B-check?

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1           A     It would be -- I wouldn't have anything to do  
2 with the production plant inside, but as a routine, it would  
3 be just the C-check.

4           Q     Would the level of detail vary or differ between  
  
5 a check done in heavy versus a check done on the line, for,  
6 say the B-2?

7           A     Significant level.

8           Q     Could you explain or expand relative to the steps  
9 in the B-2 check?

10          A     Emery's B-2 -- B-check program, as well as its  
11 entire program, was built from the Douglas maintenance

12 program. We used the on aircraft maintenance planning  
13 document to develop that process. It has two primary  
14 processes. You have a visual inspection and/or a detailed  
  
15 inspection, as is listed in that OEMP manual. The -- as for  
16 the OEMP, the C-check level is a very comprehensive look at  
17 the aircraft, very detailed, a lot of panel removal and  
18 sometimes as many as possible. Whereas the B-check is a

19 line check function, which is primarily a servicing and a  
20 visual inspection.

21          Q     So did you just say that in the -- the B-check



22 was done in the heavy check facility, things would tend to  
23 be opened up to a greater degree than when you did your line  
24 maintenance.

25 A I'm not aware of what the B-check was done at the

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1 heavy maintenance facility, other than the request that we  
2 give them in a package that we give them to perform it.

3 Q And you heard the previous testimony relative to  
4 the discussion on verifying the -- securing the attachments

5 et cetera?

6 A Yes, sir.

7 Q What was your opinion of those as to whether or  
8 not the faring on the DC-8 would be removed or not removed  
9 due to -- to accomplish that check?

10 A It would not be, and that was based on you going  
11 back to the OEMP, but also, Emery back in 1990, done

12 comparison of the Douglas C and -- well, D and E check as  
13 you would refer to, the OEMP, we also got the current United  
14 DC-9 package. We also got the current Flying Tigers package  
15 at that time, and we'd done a comparison, or a transition if  
16 you will, to bring Emery's program in alignment with the  
17 current Douglas OEMP and also a current industry operating  
18 fleet.

19 MR. BREUHAUS: Okay, thank you. No more  
20 questions.

21 CHAIRMAN GOGLIA: Tennessee Technical Services?

22

DIRECT EXAMINATION

23

BY MR. HOFFSTETTER:

24

Q Dave Hoffstetter, Tennessee Technical Services.

25

Tom, I'm a little confused about the RII and designated

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1 inspector program. As I understand what you were saying  
2 earlier, the -- there is not a full time inspector on the  
3 ramp at Dayton. Is that correct? There's not a full time  
4 inspector assigned just to work the mechanics at Dayton?

5 A That reported to the quality control department,  
6 at that time, no, there was not.

7 Q And you use designated inspectors to inspect  
8 whatever work was accomplished at Dayton?

9 A That's true.

10 Q Who supervised the mechanics? Did they have  
11 supervisors or lead mechanics?

12 A They had leads and supervisors.

13 Q And were the leads typically the people you would  
14 give RII inspection -- or designated inspection authority  
15 to?

16 A If -- if they were -- if they met the  
17 qualifications for that. But by memory I couldn't say that  
18 they would be the ones that you would pick.

19 Q Well, it seems like we've -- if there's a main  
20 facility for Emery, that's Emery controlled, it's Dayton,  
21 and if -- if we're going to do work at Dayton, then we're

22 going to designated people that primarily report to the  
23 maintenance department to do the quality issues -- when  
24 you've got -- I don't know how many you had there, it must  
25 have been a couple hundred anyway -- that seems like a real

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1 conflict to me within what I understand is the basic concept  
2 of separation between quality control and maintenance.

3 A Oh, no, there wasn't any conflict at all because  
4 the fact that Dayton was just a transit station where the

5 aircraft came in and went out at night. And all the primary  
6 B-check stations were all out at other line stations. So  
7 there was very minimal -- there was even a minimal

8 requirement for RII people to be there, because all the  
9 people were focusing on was log page discrepancies, no  
10 inspections, no called out inspections.

11 Q And there was no full time inspector assigned to

12 -- at Dayton. Or at the B-check stations, as I understand  
13 it. The B-check stations also used designated inspectors?

14 A That's true.

15 Q And it's possible that a mechanic would work for  
16 the first four hours as a mechanic, and then work for two  
17 hours as an inspector to buy the guy working next to him's  
18 work, and go back to work as a mechanic?

19 A I don't have knowledge of that.

20 Q Okay. I just -- I just -- it seems like a real  
21 conflict. It seems like contradictory to everything that I

22 would normally do as a repair station or have done in other  
23 airline environments.

24                   You had spoke to the B-2 check being locked up in  
25 a corrections file with a letter of correction form attached

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1 to it?

2 A Correct.

3 Q And what was the reason for the -- the form must  
4 have had a reason why it was locked up or what the

5 discrepancy was.

6 A It -- I don't recall the exact reason. It was a  
7 step in the B-2 check that was not done correctly and -- as  
8 I recall, in the information -- I sent this to Mr. Carbone -  
9 - it was an operational check of the cargo vent door. The  
10 vent on the cargo door.

11 Q That was not done correctly or not signed off

12 correctly?

13 A It wasn't signed off correctly.

14 Q You had stated that there is troubleshooting  
15 training accomplished by Emery.

16 A That's correct.

17 Q Would -- if we accomplish troubleshooting  
18 training, there should be some basic criteria that the

19 mechanic would use to accomplish troubleshooting. You know,  
20 there should be either a trouble shooting guide that Emery  
21 produced or some direction in that training as to where to



22 go, or a logical sequence of events that would happen during  
23 troubleshooting. Yes or no? There should be in the  
24 troubleshooting training, there should be some indication in  
25 the manual as to what are logical steps? How do you do

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1 troubleshooting? Apparently Mr. Ungemach said they don't  
2 necessarily follow the troubleshooting guide in the manual,  
3 but they have troubleshooting training. And I was just  
4 wondering if you could clarify that for me a little bit.

5           A     Their only -- all its personnel are given the EWA  
6 training procedures for the use of the maintenance manual.  
7 The troubleshooting process is part of what's contained in  
8 the maintenance manual. Engineering produced -- even before  
9 we had engineering -- engineering produced specific  
10 troubleshooting processes for the use of maintenance service  
11 letters and published to the line maintenance stations, to  
  
12 which we also sent to the heavy maintenance facilities.

13           Q     Do you know if the elevator dampers change is a  
14 RII item in your manual?

15           A     Not without going back to look, but from memory,  
16 of all these issues, I believe it was.

17           Q     The manual that I have does not list it. I don't  
18 know, I was just curious as to with it not being listed as

19 an RII item, why the log page would be signed off as RII  
20 when they did the troubleshooting on the dampers in Dayton,  
21 and if there's any way to know if there was anything else

22 done that would require an RII signature.

23 A And I don't -- I don't have the knowledge of  
24 that.

25 Q You had stated you were involved with the initial

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1 CPCP program coordination with Douglas, I think, at that  
2 time?

3 A The Douglas in 1990.

4 Q Emery has a significantly longer time between

5 corrosion inspections, as I understand the industry average.  
6 Is that correct?

7 A Industry -- Emery has a FAA program, approved by  
8 its PMI to be in compliance with the CPCP program.

9 Q The CPCP program -- the longest time that I'm  
10 aware of in the Douglas program is the six year repeat item,  
11 is that correct per your memory?

12 A I believe so from the initial inspection  
13 requirements.

14 Q And what's the longest interval that Emery has in  
15 their program?

16 A I don't recall specifically.

17 Q Does 12 years sound right?

18 A It could, but again, if I could look at the

19 document I could confirm that.

20 Q I was just wondering how you -- my understanding  
21 of that AD is that in order to deviate from the Douglas

22 recommended program, you have to submit a plan through your  
23 PMI to the ACO in Seattle. Is that your understanding?

24 A Actually at that time it was through the AC  
25 office in LA.

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1 Q And did Emery do that?

2 A Yes, we did.

3 Q I'm a little interested in your records retention  
4 program. I understand that -- what we say happens with B-

5 checks. At the time of the accident, Emery used ME-09s at

6 various stations to document maintenance that was

7 accomplished on the aircraft. That was what Dave Ungemach

8 said. Does that sound correct to you?

9 A The non-routine form --

10 Q The non-routine form.

11 A -- was used for B-checks, that's correct.

12 Q It was also used for line stations, through

13 flights, overnights, A-checks, any other type of maintenance

14 at that time.

15 A No, actually, being familiar with the review of

16 the paperwork on behalf of the log pages, it was only used

17 for the B-check. Those discrepancies were placed in the

18 aircraft log book.

19 Q Do you have a retention policy on the non-routine

20 forms? Would it be the same as the package they were

21 originally accomplished with?

22           A     I would have to look at the -- our retention  
23 policy was based off of the FARs -- requirements, and  
24 without looking at that again -- I haven't looked at that  
25 for quite some time.

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1           Q     How was the selection of people to be trained  
2     accomplished?  In other words, if you had a 40 hour  
3     familiarization course, or an eight hour troubleshooting  
4     course on air cycle machines or CFM-56, who decided who  
  
5     would go to that training program?

6           A     We had in the MPP, a list of maintenance training  
7     that was provided and required items that had to be  
  
8     received.  And above the ... indoctrination, the 40 hour fam  
9     course for the DC-8, the special -- then mechanics then were  
10    scheduled for power plant courses.  There was a selection  
11    process when you got into the specific avionics training,  
  
12    because that was given to a specific group of avionics  
13    mechanics, and may not have been given to them all.  That  
14    was -- the actual -- who got what training was then changed  
  
15    to where the training department actually issued out, on a  
16    90 day basis, a list of people to receive training courses  
17    that they had not received.

18           Q     Was that monitored by their supervisors, that  
  
19    they had input into that program, or was it a separate  
20    function run strictly by training?  They would send out --  
21    we want to see the following 12 people receive this training



22 in the next 90 days, and then it was up to the supervisor to  
23 schedule or did they just push the schedule out?

24 A In the beginning the supervisors done the  
25 scheduling. But when it was changed, the training

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1 department done the scheduling.

2 Q And who was -- who ran the training department?

3 A At that time?

4 Q Yes.

5 A Bruce Robbins.

6 Q Flight control vendors. Who was involved with

7 the selection of vendors to provide flight controls to

8 Emery, do you know?

9 A I do. Emery has, again in their MPP, a very  
10 comprehensive maintenance vendor selection process, to which  
11 the director of material, the director of engineering, the

12 director of quality control, and the director of heavy  
13 maintenance are all involved in the initial submittal of an  
14 FAA-approved 145 vendor to be selected to provide service.

15 When it goes through that process for their review, then  
16 it's forwarded to the manager of quality control who checks  
17 the CASE registry and any other input from the industry with  
18 regard to the status of the vendor, how many other airline

19 customers he may have, and so forth and so on. And then it  
20 even goes to the manager of reliability, at that particular  
21 time, who also does a check on any vendor information that

22 he may receive through the reliability information process.

23 At that time, if that's agreed upon, and that  
24 vendor approval is approved by all those parties, then a QA  
25 auditor is sent to that vendor to perform a CASE level 3

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1 audit.

2 Q In the case of the flight controls on the  
3 accident airplane, those were purchased from a company  
4 called Willis Group, and Willis had them overhauled or

5 purchased them or had some arrangement with CCI. Was CCI at  
6 that time a approved Emery vendor, or would it be necessary  
7 for them to be an approved vendor if you were purchasing  
8 flight controls from them?

9 A Two questions.

10 Q Yes, sorry.

11 A Fine. The answer to the first one. If we

12 purchased it from a -- whatever that company was --

13 Q A broker.

14 A -- a broker, no, they would not be required to be  
15 on our approved vendor list. But in fact, we did go out and  
16 audit that particular vendor. As you know, specifically,  
17 Emery had a very, very heavy check schedule for the year  
18 2000 and there was multiple number of flight controls

19 changed, and to meet that requirement even then, when the  
20 number of DC-8 vendors are small to begin with, not to  
21 mention the 145 heavy maintenance vendors, our selection is

22 small -- we had went out with this intense campaign to go  
23 out and establish quality 145 approved vendors. We went out  
24 and done an audit.

25 Q Did you do the audit on CCI before or after these

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1 controls were purchased, or do you know?

2 A To my recollection, we did it before.

3 Q Willis Aeronautical was not a 145. It's a  
4 broker.

5 A Yes.

6 MR. HOFFSTETTER: I don't have any more questions  
7 right now.

8 CHAIRMAN GOGLIA: Thank you. Federal Aviation  
9 Administration.

10 DIRECT EXAMINATION  
11 BY MR. STREETER:

12 Q Mr. Wood, if you would please take a look at  
13 Exhibit 17-RR again. Those are the training records for  
14 that mechanic.

15 A Yes, sir.

16 Q When you were discussing this earlier, I thought  
17 I heard you say that one of the items that would be on here  
18 would be RII training. And I'm having -- I don't find RII

19 training listed for the DC-9 or the DC-10 on the page -- the  
20 first page there. On the next page over, the 727 subjects  
21 are listed, I do see an RII B-727 familiarization course.

22 My question is am I missing it in here somewhere, or is the  
23 RII training included in another subject matter area?

24 A It is missing on this physical page, and that is  
25 true. In -- this is Mr. Hall, so at the time we had

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1 submitted this, some time back, from my memory now which  
2 NTSB has a copy of, he is -- he does have the training.  
3 It's in his training file. He has his training, he has his  
4 authorization. From what you and I are looking at here

5 today, is -- and I'm not that knowledgeable -- is if the RII  
6 should be listed on here, it's not.

7 Q Okay.

8 A On another document that I gave the NTSB, it is.

9 Q It is. Alright, fine, sir. Now, let me  
10 apologize to you and everybody else in the room, because  
11 we've now got to look at FARs and I hate going through this,

12 but let's give this a try. Over on Exhibit 7-T, 7-Tango,  
13 and I'd better check here real quick, because I'm not even  
14 sure if that's on -- no. Okay, I do not see 7-Tango listed  
15 on Mr. Wood's list of items, so I'll have to check here with  
16 Member Goglia and see if it's acceptable to use that or  
17 what?

18 CHAIRMAN GOGLIA: The witness is a certified A&P

19 mechanic. He is familiar with the FARs, and in his job he  
20 should be intimately familiar with them. So please  
21 proceed.



22

BY MR. STREETER:

23

Q Okay, Mr. Wood, do you have a copy of 7-T there

24

coming up. If you would look towards the back, it's on page

25

eight, and we're talking about FAR 121.380.

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1           A     I'm there.

2           Q     And in your job you would have been generally  
3 familiar with this section, is that correct?

4           A     That's correct.

5           Q     Okay. Now I want to go over to the last page  
6 there, and at the top of the page in Section C(1), and this  
7 is where it refers to the -- basically to the retention time  
8 of records that are required for return to service and the  
9 release of an aircraft, and so on.

10          A     That's correct.

11          Q     Now, going back to the earlier discussions on the

12 B-2 check, as I understand it, the B-2 check was never  
13 really thrown out, it was just misplaced somewhere.

14          A     That's correct.

15          Q     But at some point during the investigation,  
16 somebody thought it had been thrown out and statements to  
17 that effect were apparently made. And I believe that in the  
18 discussion you mentioned that -- there was discussion that

19 you felt that that was allowable because the B-2 check had -  
20 - there had been -- another B check had taken place.

21          A     The company felt that.

22           Q     The company felt that. Okay. Then I guess what  
23 I would say is, I need to question on Subsection C(1) there,  
24 it basically says that we're going to retain these records  
25 until the work is repeated, superseded by other work, or for

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1 one year. Is it the company's belief -- or was it the  
2 company's belief at the time that it was thought these  
3 records had been discarded, was it the belief that the B-2  
4 check repeated what was on the B-1, or superseded it?

5 A If we had that Section out of the MPP that  
6 addresses that, it would be -- neither one of those two  
7 words.

8 HEARING OFFICER HILLDRUP: Sorry to interrupt.  
9 I've got that page from the MPP on the visualizer. I think  
10 all the parties should have a copy now, if it's appropriate,  
11 Mr. Chairman, we could --

12 CHAIRMAN GOGLIA: Certainly. Proceed.

13 HEARING OFFICER HILLDRUP: AV could you  
14 illuminate the visualizer? Good luck. It's a little hard  
15 to read, but -- For the record, this is from Emery's MPP  
16 maintenance policy and procedures manual. It's Chapter six,  
17 page 14, the effectivity date is January 15, 2000.

18 CHAIRMAN GOGLIA: Mr. Julius, could you slide the  
19 page down so we can see the top of it, please? Thank you.  
20 And Mr. Hilldrup, since this is your Exhibit, just where are  
21 we looking?

22 HEARING OFFICER HILLDRUP: It's a new Exhibit,  
23 11-K.  
24 CHAIRMAN GOGLIA: And on the page, where are we  
25 looking?

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1 HEARING OFFICER HILLDRUP: Oh, I'm sorry,  
2 paragraph eight, I believe gets into the area of questioning  
3 that Mr. Streeter's pursuing, but from a company literature  
4 standpoint.

5 (The document presented, marked  
6 for identification as Exhibit  
7 Number 11-K, was identified.)

8 BY MR. STREETER:

9 Q Do you have that document in front of you, Mr.  
10 Wood, or do you -- are you working off the --  
11 A I have it.

12 Q Okay, good. And I just got that myself, but I  
13 presume what we're going to look at is that paragraph eight  
14 down there on it, inspections.

15 A That's correct.

16 Q And it looks like the company's procedure is "the  
17 actual sign off document may be discarded upon recompliance  
18 of the inspection, the inspection is superseded by a higher

19 inspection, or one year has elapsed." Would -- when I asked  
20 you about the words in the reg, you said that they were  
21 different words. Would it be one of these?

22           A     Well, yes, the words that you just actually read.

23           Q     I guess what I'm trying to get at is do we -- is  
24     it the company's stance then that the B-2 was a recompliance  
25     of the B-1 or that it superseded it with a higher level

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1 work?

2 A At -- the company's position as in the letter  
3 that they sent to NTSB, that it was superseded.

4 Q Superseded. Okay.

5 MR. STREETER: That's all I have, sir, thank you.

6 CHAIRMAN GOGLIA: Okay, thank you, and Emery.

7 MR. HAGQUIST: We have no questions.

8 CHAIRMAN GOGLIA: To the technical -- Board of  
9 Inquiry. Mr. DeLisi.

10 DIRECT EXAMINATION  
11 BY MR. DeLISI:

12 Q Thank you. Just one question, Mr. Wood. At the  
13 time of the time of the accident, did Emery have a  
14 designated RII -- did Emery have designated RII personnel at  
15 Mather Field?

16 A I'm not sure.

17 Q What do you believe would have happened if some  
18 maintenance was performed at Mather that required an RII

19 sign off?

20 A The Reno station, which is close to that, did  
21 have that personnel there. That's from my memory right now,



22 so it would have -- the aircraft would have been on the  
23 ground until that personnel was moved into that station and  
24 that was addressed.

25 MR. DeLISI: Thank you. That's it.

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1 CHAIRMAN GOGLIA: Dr. Kushner.

2 DIRECT EXAMINATION

3 BY DR. KUSHNER:

4 Q Well, I mean I'm still a little bit confused

5 about the definitions or interpretation of the B-2  
6 essentially recomplying with the B-1 or B-3 recomplying a B-  
7 2. Do you have anything other than what you've already said  
8 that could clear that up?

9 A It -- give me a minute, please. No, the simple  
10 fact of this subject was that the company in October of last  
11 year, per their accepted procedures, this was the position  
12 that they took.

13 DR. KUSHNER: Fine.

14 DIRECT EXAMINATION

15 BY CHAIRMAN GOGLIA:

16 Q Okay, work cards. Who approves them at Emery?

17 A The work cards --

18 Q Yes, if you had change work cards in the package,

19 who would have approved the change?

20 A They would be approved first by the -- Emery's  
21 MRB program, and then sent to the PMI for approval. That's

22 an arrangement that in fact we had with the PMI.

23 Q Do you sit on that MRB board?

24 A I did, sir.

25 Q Okay, do you have -- I know you've been busy up

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1 there, but did the name come to your mind with the face that  
2 you -- who was in charge of reliability?

3 A Yes, it did sir, Robert Crabtree.

4 CHAIRMAN GOGLIA: Okay, can we go back to the

5 Board, technical panel? Would you like a minute?

6 REDIRECT EXAMINATION

7 BY HEARING OFFICER HILLDRUP:

8 Q No, sir, and I apologize, I do want to just go  
9 back to the MPP once again. We don't need it on the  
10 visualizer per se, but we've heard about what you -- your  
11 recollection of the company's decision or -- decision on

12 that point was about the supersedure of the B-2 by the B-3.

13 What's your personal opinion?

14 A Personal opinion.

15 Q Do you believe the B-3 supersedes the B-2 in the  
16 Emery program?

17 A The very first thing that I would have to say,  
18 based again on history, is -- at Emery -- is -- and I'm

19 adding things here -- Emery had also done C-1, C-2, C-3 and  
20 C-4, and those -- that was primarily a Douglas block check,  
21 but there was a few cards that were not done in some of the

22 checks. This procedure, which we've all read here, A,B, C,  
23 and D, when Emery received in -- if a C-1 check was  
24 performed, which that would have been the first check after  
25 the B-check, a C-1 would be done, the old C-4 that would

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1 have been done with the D, at that time would have stayed in  
2 the drawer with the D. When the C-2 check was done and came  
3 back, the C-1 would be removed from the active record files.  
4 That's a procedure that we had in place for -- for over ten

5 years, was audited by the -- all different agencies and  
6 found to be in compliance.

7 Q Thank you. Back again to my question about the  
8 B-3 and the B-2, though. Your experience and what you know  
9 about the B-3 and the B-2 checks at Emery, could you give me  
10 a personal opinion of whether you think the B-3 superseded  
11 the B-2?

12 A It did in functionality, that's true.

13 Q I'm sorry, could you be a little more specific?  
14 I'm trying -- and specifically, there are portions that  
15 appear in the B-2 that do not appear in the B-3, and perhaps  
16 vice versa. There are certainly some portions that may be  
17 repeated, but overall, as a segmented B-3, does that  
18 segmented B-3 check supersede the B-2, and if you could be a

19 little more specific, please?

20 A Per Emery's procedures that they had in place, or  
21 is this back to my personal opinion?

22           A     I'd like your personal opinion, thank you.

23           A     Per the procedures and per the regulation, and  
24     having it being managed by 121 air carrier ... maintenance  
25     analysis program, I would not see the requirement to

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1 maintain the B-2 in this case. However it was.

2 HEARING OFFICER HILLDRUP: That's all. Thank  
3 you.

4 CHAIRMAN GOGLIA: Okay, the parties. ALPA?

5 Tennessee Tech? Okay.

6 REDIRECT EXAMINATION

7 BY MR. HOFFSTETTER:

8 Q Tom, if -- was that record retention policy  
9 actively maintained by Emery? I mean did they actually  
10 remove the C-2 check after the C-3 was accomplished -- from  
11 the aircraft records?

12 A From the active files?

13 Q From wherever -- from wherever you had records.

14 A It was removed from the active files, that's  
15 true.

16 Q And then where did it go?

17 A Actually went into storage.

18 Q So you still had -- you still have the B-1

19 checks, even after the B-2 was accomplished? It doesn't  
20 come out -- disappear forever? So you could go back to long  
21 term storage, or whatever you want to call it, and find all



22 of the records for any aircraft that you had?

23 A There's a very strong likelihood.

24 Q My feeling was maybe that had something to do  
25 with the numbers of repairs that we were getting involved

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1 with on lease returns. If I have 80 repairs on an aircraft  
2 and have no documentation, maybe that relates to the -- to  
3 not maintaining the records on the aircraft?

4 A Now the records that were required to be kept on  
  
5 the aircraft, were maintained. That was aggressively  
6 audited over a ten year period of time, with -- with -- like  
7 through ten years, there was five, six, seven NASIPs,  
8 RASIPs. Less than six initial findings.

9 Q Are you familiar at all with aircraft 994?

10 A No, sir, I'm not.

11 Q The DC-862?

12 A No, sir.

13 Q Who in the Emery organization is responsible for  
14 keeping the maintenance -- the maintenance data coordinated  
15 with the operations data? Is there some group that -- let  
16 me give you my example and maybe you can tell me where the  
17 hole is. We did an overhaul on 994. The aircraft was  
18 scheduled for a test flight. The flight engineer came in

19 and the -- he was checking the stabilizer trim, buttons on  
20 the yoke, and the stabilizer trim buttons did not disconnect  
21 the autopilot. That's on his check list. His contention

22 was that something was -- some error was installed in the  
23 airplane, or defect was installed on the airplane during the  
24 heavy maintenance visit. And I would assume this would have  
25 -- this airplane was four months away from a lease return,

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1 so it had to have been in the fleet for a while.

2 We got into wiring diagrams, and the maintenance  
3 manual, and the aircraft had been modified in 1977 and wired  
4 so that the autopilot would not disconnect when the

5 stabilizer trim was moving. We spent about 70 or 80 man  
6 hours doing research on the airplane, but there was no  
7 record anywhere within the operations group that anyone ever  
8 made me aware of that operations could -- knew that that  
9 airplane was different from the rest of the fleet.

10 Who -- if they had a problem, and the airplane  
11 didn't comply with the checklist, they had to notify

12 somebody, and where does the coordination come in? How do  
13 you update the checklist or the procedure to keep everybody  
14 in the same loop?

15 A Specifically, the operations and the engineering  
16 group would have taken care of that, and all of those items  
17 would have been given to engineering, and engineering and  
18 operations, along with the technical publications of

19 operations and maintenance -- everybody worked very closely  
20 together to identify what those issues were, if there was  
21 any modifications that needed to be performed and paperwork

22 associated with that distributed through training manuals,  
23 training, and so forth and so on. But yes, sir, there was a  
24 very comprehensive vehicle.

25 Q Well, how do we know when an airplane that's been

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1 operating for at least a year with -- I'm sorry, how do we  
2 end up with that type of situation? It baffled me. There  
3 were several similar situations where we would end up in a  
4 debate with the flight crew about what was supposed to

5 happen. They had a fairly detailed check list of what they  
6 thought was supposed to work, and it didn't match what was  
7 really on the airplane or what the maintenance manual.

8 A Well, again, I'm sorry I'm not familiar with that  
9 aircraft or that event.

10 Q Where is long term storage for the records? If  
11 we're only maintaining the last C-check and the last

12 overhaul -- and I assume that's in a file cabinet somewhere  
13 where it should be very convenient to locate. The previous  
14 C checks and the history that was provided to Emery when  
15 they leased or purchased the airplanes, where is that  
16 facility? Is that within the same building there at Dayton,  
17 or is it off site or?

18 A It's within the same building.

19 Q So the records or retention policy really has  
20 nothing to do with the destruction or throwing away records,  
21 just a movement from short term storage into long term

22 storage?

23 A No, the record retention policy is a program in  
24 place, and Emery abided by that program.

25 Q I'm confused, but I'm -- thank you.

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22 check, and if not, how would the B-3 check supersede that of  
23 the B-2 check and thereby allow Emery to discard the B-2  
24 package?

25 A The -- again, I would have to look at the cards,

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1 but their program was their program.

2 CHAIRMAN GOGLIA: What was the Exhibit number  
3 again, Mr. Pudwill?

4 MR. PUDWILL: Exhibit 7-O.

5 CHAIRMAN GOGLIA: Would the witness please --

6 BY MR. PUDWILL:

7 Q I'm sorry -- let's see here. It's actually in  
8 two locations, It's actually in 17-U, signed, I believe the  
9 last page, page four, 11-I is an unsigned copy.

10 A I've got 17-U.

11 Q Should be the last page of Exhibit 17-U.

12 A Correct. This -- again, you'd have all three of  
13 these checks, so -- and by memory, I don't know whether this  
14 exact verbiage is on -- is on the B-3. I know it's on the  
15 B-4.

16 Q As you indicated, yes, the Board does have all  
17 three check packages, and we have reviewed all B-1, B-2, and  
18 B-3 checks, and since it's not an Exhibit here, from my

19 perspective, yes, there is no overlap between the B-3 and  
20 the B-2. And with that in mind, then I would ask, how would  
21 Emery be able to discard the B-2 check package just because

22 the B-3 had been completed? Without the Exhibits before  
23 you, it's really useless to go any further.

24 A That's true, but -- but the issue, I believe,  
25 too, is the fact that it was not discarded. It was found in

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1 the lock down records.

2 Q That's correct, but essentially what I would be  
3 asking, how would it be justified to discard those? I  
4 realize that they were not discarded.

5 MR. PUDWILL: I have nothing further on this.

6 CHAIRMAN GOGLIA: Okay, thank you. Anybody at  
7 the Board of Inquiry? No questions, okay.

8 REDIRECT EXAMINATION

9 BY DR. KUSHNER:

10 Q Just out of curiosity, then, did Emery ever  
11 actually throw away any of these records? Or everything

12 that went into long term storage, or whatever you call it  
13 stayed there forever?

14 A That I can speak to because from the day of the  
15 lock down of the records, I was the director of quality  
16 control at that time. And the manager of records and myself  
17 physically went in to the records room and used tape, I  
18 believe at that time, to make it secure, and then we moved

19 them into a secure room. So -- and then we collected the  
20 records that were located in the quality assurance area,  
21 maintenance control, and I believe maybe reliability that

22 had to do with that aircraft, so we could get all the  
23 records available for this record audit that was actually  
24 performed. So those were locked down, put -- then placed in  
25 boxes and put into a specific room --

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1           Q     Excuse me. That's not really the question I  
2     asked. I was just trying to get a clearer picture on  
3     company policy, whether any records were ever thrown away.

4           A     Not that I know of. I was just presenting a  
  
5     history of the fact that I had been hooked up to.

6           CHAIRMAN GOGLIA: Okay, Mr. Wood. Thank you very  
7     much for your conversation, and you can step down, but  
  
8     again, like all the other witnesses, I request that you stay  
9     around here and -- until the end.

10           THE WITNESS: Yes, sir, thank you.

11           CHAIRMAN GOGLIA: We will take a ten minute

12     break. When we come back, it's Mr. Robbins up next. Would  
13     he just go directly to the stand, please. TTS, yes?

14           MR. HOFFSTETTER: Excuse me, Mr. Goglia. I have  
  
15     some business I need to take care of. I wonder if it's okay  
16     if we designate Sam Porter as spokesman for the company for  
17     the next witness.

18           CHAIRMAN GOGLIA: Yes, that's fine. I understand  
  
19     that these proceedings put burdens on everybody, especially  
20     small companies, so, yes, that's fine.

21           MR. HOFFSTETTER: Thank you.

22                   (Whereupon, a 20 minute recess off the record was  
23 taken.)

24                   CHAIRMAN GOGLIA: Mr. Hilldrup, will you call  
25 your next witness, please?

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1 HEARING OFFICER HILLDRUP: Before we get started  
2 I'd just like to say I've been presented with a new piece of  
3 evidence. It's a key for a Nissan. If it's yours, feel  
4 free, come on up. I have no idea what kind of Nissan, but  
  
5 probably better than what I've got. Come on up.

6 Next witness is Mr. Bruce Robbins.  
7 Whereupon,

8 BRUCE ROBBINS  
9 was called as a witness, and first having been duly sworn,  
10 was examined and testified as follows:  
11 HEARING OFFICER HILLDRUP: Your full name and

12 current address, please?

13 THE WITNESS: Bruce A. Robbins, [REDACTED]  
14 [REDACTED] Ohio 45424.

15 HEARING OFFICER HILLDRUP: And you're currently  
16 employed by who?

17 THE WITNESS: Self employed.

18 HEARING OFFICER HILLDRUP: Briefly describe your  
  
19 experience, please?

20 THE WITNESS: Briefly, 24 years in aviation, four  
21 of that, U.S. Navy as aircraft electrician. Twenty years in



22 commercial civil aviation, basically about 15 years of  
23 that's on the DC aircraft, mainly in the area of avionics,  
24 but general maintenance. I spent -- in August of '89 I was  
25 employed by Emery Airlines as a mechanic and was there for

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1 11 years where I progressed up through management, spent  
2 times in various departments. At one point I was the  
3 manager of maintenance training and established their in  
4 house maintenance training program. From there I was

5 promoted to the director of engineering, where I established  
6 an engineering department.

7 In June of 2000, I left to go to a start up  
8 airlines and held the position as chief inspector and they  
9 neglected to get their funding at least yet, so I'm self  
10 employed at this point.

11 HEARING OFFICER HILLDRUP: Thank you, sir. Mr.

12 Kevin Pudwill will be doing the questioning of Mr. Robbins.

13 DIRECT EXAMINATION

14 BY MR. PUDWILL:

15 Q Good afternoon, Mr. Robbins. I've got to change  
16 my sequence here. Could you please describe your title,  
17 duties and responsibilities when you first started working  
18 for Emery?

19 A When I first started working I was a lead  
20 avionics mechanic on the Dayton line.

21 Q And once again, since it was rather quick, could

22 you please identify, in order of succession, the various  
23 other positions that you've held while employed with Emery,  
24 including your title at the beginning of the accident  
25 investigation.

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1           A     Yes.  Lead avionics.  Avionics supervisor.  
2     Maintenance controller.  Line supervisor.  Manager of  
3     maintenance training.  And at the time of the accident,  
4     director of engineering.

5           Q     Could you provide additional details regarding  
6     your duties and responsibilities as a maintenance  
7     supervisor?

8           A     As a maintenance supervisor, it was kind of  
9     double duty.  We took care of personnel issues, vacations,  
10    time cards, things of that nature.  We also assisted  
11    mechanics with particular -- particularly hard problems on  
  
12    an aircraft, helped to distribute people so that they were  
13    most effective.  People with certain specialties -- they may  
14    not be assigned to work on that aircraft, so we would move  
15    people around to make sure that we accomplished the work in  
16    the time allotted.

17          Q     Could you elaborate regarding your duties and  
18    responsibilities while working for maintenance control?

19          A     At the time Emery had four aircraft and general  
20    duties as maintenance controller, you answer the phone  
21    calls, you track the aircraft maintenance activities, did as

22 much as you could to coordinate parts movement and any  
23 troubleshooting tips or information you could help the  
24 mechanics with in order to fix an aircraft.

25 Q Approximately how long did you work in

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1 maintenance control?

2 A I would say eight months, maybe nine months.

3 Q Could you explain why you left maintenance  
4 control?

5 A Promoted to become a -- it was a promotion to be  
6 a line supervisor over the Dayton RAMP activity, not just  
7 avionics, but all the maintenance.

8 Q Okay. Could you elaborate regarding your duties  
9 and responsibilities while acting as the manager of  
10 maintenance training?

11 A When I was initially promoted to manager of

12 maintenance training, there was one individual assigned to  
13 do maintenance training, basically records keeping. There  
14 was outside contractors hired to train Emery's mechanics.

15 In the course of my six years as the manager of maintenance  
16 training, I hired instructors, had a \$1.5 million  
17 maintenance facility built, developed the training manuals  
18 that you guys see -- at least that's a portion of some of

19 the manuals that you have received.

20 And towards the end of my period as the manager  
21 of maintenance training, I had -- let me back up a little

22 bit. I was an instructor as well, and did instructor duties  
23 for several of the classes, mostly in the avionics, but  
24 indoc and things of that nature. As I hired on -- as Emery  
25 hired on more instructors, then my duties lightened up

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1 considerably, and I started working on taking on project  
2 management for some of the engineering projects that were  
3 going on, DPFMS installation, things of that nature. I  
4 started running those as project manager and basically that

5 launched into the engineering department development.

6 Q Okay, thank you. Could you please describe your  
7 professional qualifications for the position that you held  
8 at the time of the accident, i.e., director of engineering?

9 A Yes, I've attended the University of Cincinnati  
10 electronic course at the University of Cincinnati, and most  
11 of my experience came from working with manufacturers, STC

12 holders, STC developers, engineering firms. At the time  
13 Emery was dependent upon outside engineering firms to  
14 develop STCs, and I can't recall how many projects I oversaw  
15 as project manager -- that's basically the background for  
16 that.

17 Q That's fine. Could you please identify any  
18 special qualifications that were required by Emery at that

19 time?

20 A For?

21 Q For the position of director of engineering?



22           A     I believe they were management -- prior  
23 management experience, -- I can't really recall all of them.  
24           Q     Are you a current A&P?  
25           A     Yes, sir.

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1           Q     What position, by title, did you report to while  
2 acting as the director of engineering?

3           A     Vice president of technical services.

4           Q     And what positions, by title, reported to you as  
  
5 the director of engineering?

6           A     I had systems, structures, power plants and  
7 avionics engineers reporting to me. The manager of  
  
8 reliability, at the time it was Robert Peck, and the manager  
9 of technical publications.

10          Q     Okay, thank you. Could you please describe your  
11 major duties and responsibilities as the director of  
  
12 engineering?

13          A     Major duties and responsibilities, mostly was  
14 coordination of activities below me and then gaining  
  
15 funding, analyzing the industry to see what was the next --  
16 you know, the next big AD, not the smaller ADs, but larger  
17 ADs -- aging aircraft things, when they shut down the Omega  
18 system -- that was a -- you track those type of things and -

19 - around the world, to make sure that Emery was poised to  
20 have the funding and the components, and have a project in  
21 place to take care of those things, such as TCAS and things

22     like that.  So it was kind of divided between managing the  
23     processes and the people, and looking ahead to see what was  
24     going to be required.

25             Q     Alright.  As the director of engineering, were

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1 you responsible for monitoring aircraft technical problems  
2 in order to minimize their impact on operational performance  
3 and maintenance?

4 A The reliability, yes.

5 Q As the director of engineering, were you  
6 ultimately responsible for submitting changes to the  
7 maintenance and inspection programs?

8 A The reliability -- the MRB, the maintenance  
9 reliability board -- that's where the changes were  
10 introduced. I'm not sure if I'm answering your question.

11 Q Were you ultimately responsible for submitting  
12 changes to the maintenance inspection programs since the  
13 manager of reliability reported directly to you? Were you  
14 ultimately responsible for these functions?

15 A No, it was not a sole function to put those  
16 changes into the maintenance program. It was a board  
17 function.

18 Q Which would reside within the engineering  
19 department?

20 A The maintenance reliability board consisted of  
21 department heads. Any changes to the maintenance program,

22       there'd be a recommendation that would be -- you want me to  
23       describe the process, real short?

24               Q       That would be great.

25               A       Okay. Reliability would analyze the incoming

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1 data. If there was a trend spotted for some sort of  
2 negative impact, irregardless of what it was, a review of  
3 the work decks, all the work cards, would be reviewed to see  
4 where -- if that activity was taken -- if there was -- say  
  
5 it was a seat lubrication. We were having problems with the  
6 seats, the maintenance of the seats, jamming of the seats.  
7 We found in some of the cards where the seats were being  
8 lubricated, but we felt that either the lubrication was not  
9 correct or we had a better lubricant out there, or that  
10 maybe it wasn't frequent enough, reliability would propose a  
11 change via a work card -- either an additional work card or  
  
12 editing a work card. That card then would be presented  
13 before the MRB to be voted upon, based on all the  
14 information. And if it was adopted it would be then sent to  
15 the FAA for approval.

16 Q Okay, thank you. Try to rephrase this a little  
17 bit. What about changes to the maintenance program itself?  
18 Maintenance manuals? Illustrated parts catalog, et cetera?

19 Wouldn't that reside within the tech ... group?

20 A Yes.

21 Q Which falls under engineering?

22           A     Yes, sir, it did.

23           Q     So there would be some type of cognizant  
24 authority over the programs that were put forth?

25           A     Yes.

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1           Q     Alright, thank you.  Would it be appropriate to  
2     say that as the director of engineering, you were  
3     responsible for initiating engineering changes as necessary,  
4     to insure the continued airworthiness of Emery's fleet of

5     DC-8 aircraft?

6           A     Yes.

7           Q     Could you briefly describe your involvement with  
8     this accident investigation?

9           A     The night of the accident I was called at home at  
10    around midnight.  I --

11          Q     Not quite that much detail, sorry.  Which group  
12    you were a member of and major functions you performed to  
13    date?

14          A     Member of the group's going to be a little  
15    difficult.  I started out with you, as you know, and I  
16    believe that group was called the systems instructors group.

17          Q     Air worthiness group.

18          A     Okay, if it's all under the air worthiness group.

19    That's the group I've been with since the day of the  
20    accident.

21          Q     Okay, but initially you supported on scene



22 activities?

23 A Yes, I did.

24 Q And then approximately a year later, when we  
25 reconvened the air worthiness group, you were present in ...

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1           A     Yes, I was.

2           Q     And follow up testing at Emery.

3           A     I was not there for the follow up testing at  
4 Emery.

5           Q     Okay. My error there, thanks. Could you please  
6 identify when you left Emery and why you decided to leave  
7 the company?

8           A     I left in June of 2000 to pursue an opportunity  
9 to work and build a start up airline.

10          Q     When were you rehired by Emery? And in what  
11 capacity do you now serve the company?

12          A     I serve the company -- I'm basically being  
13 retained to help with different projects within Emery.  
14 Throughout the course of this, because they wanted  
15 continuity with the accident investigation, I was brought in  
16 several times when there were events taking place regarding  
17 the investigation, to assist and to maintain that sense of  
18 continuity.

19          Q     Okay, thank you. I'd like to shift my focus now  
20 to the D-check that was performed at Tennessee Technical  
21 Services, and in doing so discuss several of the issues

22     pertaining to the maintenance instructions provided by  
23     Emery.

24                     Mr. Robbins, was it standard practice at Emery  
25     for engineering to write simple or generic work procedures

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1 that referred maintenance personnel to the applicable  
2 maintenance manual for the detailed work scope?

3 A You're asking about the format of the work cards?

4 Q Yes, essentially.

5 A That was the -- that was the format -- that --  
6 I'm not sure if I -- could you restate the question?

7 Q Was it essentially a standard practice at Emery  
8 for engineering to write simpler, generic procedures that  
9 would refer the mechanic or maintenance personnel to the  
10 specific or appropriate maintenance manual?

11 A I don't think there was an effort to write

12 generic cards. I think there was an effort to give as much  
13 detail on the cards as possible, given the diversity of the  
14 fleet.

15 Q Okay, thank you. Can you describe how  
16 maintenance personnel at Emery or its various repair  
17 facilities were expected to determine the applicable or  
18 effective maintenance manual or illustrated parts catalog

19 reference to be utilized when performing maintenance and/or  
20 inspection tasks in accordance with Emery's maintenance  
21 program?

22           A     Sure.  The process is very simple in practice.  
23     There's two methods to begin with on identifying what  
24     aircraft you have by serial number.  Emery produced an  
25     aircraft directory which showed the aircraft tail number,

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1 and all the associated other numbers -- fuselage number,  
2 manufacture date, original operator, different codes for  
3 IPC. That sheet was distributed widely and published --  
4 updated whenever necessary, whenever an aircraft came on or  
5 left certificate.

6 In that case, you could just pick up the serial  
7 number off of that -- off of that directory. If that's not  
8 available, say it was stuck out on the line somewhere, on  
9 the aircraft cabin entry door there was a placard that would  
10 give the serial number. That serial number -- you just need  
11 that serial number, you go to the front of the maintenance

12 manual and in that introduction to the maintenance manual,  
13 there is a list of the serial numbers. Adjacent to the  
14 serial numbers is the applicable code -- this is a general  
15 description of it -- I would have to walk through it -- but  
16 that serial number is associated with a code in the case of  
17 a maintenance manual, code 1, code 2.

18 Once you've established what the code is,

19 anywhere in the maintenance manual that you go, as long as  
20 you stay within the confines of that manual, that code is  
21 applicable for that aircraft.

22 Q In other words, if you did not have the proper

23 maintenance manual in hand at that time, in search of a  
24 particular serial number that should be contained in that  
25 manual, would you be able to -- you would not be able to

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1 find the applicable instruction for that aircraft, is that  
2 correct?

3 A If the --

4 Q Let me try to rephrase that here. I think I

5 understood your response. What i'm saying is how would you  
6 determine or how would maintenance personnel determine which  
7 manual they need to refer to in order that they determine  
8 the proper code effectivity, and therefore proper chapters?

9 A Well, in the course of this hearing there's been  
10 a lot of talk about Emery's manuals, United's manuals,  
11 Douglas manuals, and I'd like to, if I can, try to clear up

12 that premise first and maybe help people understand.

13 Q Sure.

14 A The Emery manuals are all the manuals that Emery  
15 uses. Okay? Within that set of Emery manuals, there are  
16 various manuals in there. One of the manuals that is in  
17 there is the original -- I shouldn't say the original, but  
18 the published Douglas maintenance manuals. That would be

19 one of the documents that you could go to, and in fact, if  
20 you had virtually any of the aircraft, their tail numbers --  
21 excuse me, their serial numbers would be listed in that



22 document. Does that answer your question?

23 Q So essentially you're saying a maintenance person  
24 could refer to a -- the master maintenance manual for the  
25 DC-8 fleet, and therefore determine within Emery's fleet,

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1 which particular maintenance manual they should refer to.

2 A As a starting point, yes, and depending on what  
3 that maintenance activity or action was that you  
4 specifically were looking for, that would be your starting  
  
5 point. Yes.

6 Q Okay, thank you. In your opinion, as the former  
7 director of engineering, when would it be appropriate for  
  
8 maintenance personnel to refer to the master Douglas DC-8  
9 maintenance manual or illustrated parts catalog, assuming  
10 that the respective manual from the previous operator is  
11 available and effective for that aircraft?

12 A It's a judgement call, but let me say this about  
13 that comment. In the Douglas master maintenance manual, if  
14 you follow the proper code and you get to a maintenance  
  
15 activity, or let's say the maintenance action or activity  
16 that you're looking for isn't in there, then you would have  
17 to go to the previous operator's manual, and I'd like to  
18 give you a brief description, or scenario if I could?

19 Q Sure.

20 A When Douglas built the aircraft, there is a post-  
21 production or excuse me -- pre-production options are

22 installed in the aircraft. So as the airplane comes out of  
23 Douglas, that aircraft has certain systems on it that may or  
24 may not be relative to another aircraft. All those changes  
25 are put into the Douglas maintenance manual, and there's a

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1 code assigned, and you find that code, just the way I  
2 described before.

3 After the aircraft departs the factory, it goes  
4 to the initial operator, they may or may not modify the

5 aircraft further. In most cases, these aircraft were  
6 modified by the initial operator, and in that course, some  
7 of the operators elected to update Douglas with the  
8 information so that that manual was current. There was no  
9 requirement to do that, but some of them elected to devise  
10 and build their own in-house manual. Okay?

11 So once again -- I'll go back and answer your

12 question again, I go to the maintenance manual, I'm looking  
13 for a specific maintenance activity, but I can't find one  
14 that matches my aircraft in the master. Okay? I have no  
15 option. I have to go to the previous operator. That's one  
16 way of doing it. That's a fairly simple -- at least I hope  
17 it's a fairly simple operation.

18 Q Let me try to rephrase my question. Maybe I

19 asked it incorrectly. Let's say you're working on a  
20 particular aircraft, looking for a particular procedure.  
21 Let's say you wanted to do some troubleshooting, say,

22 ailerons. And the particular chapter from that previous  
23 operator -- it's a previous operator's aircraft -- did not  
24 have a specific chapter related to that maintenance. Would  
25 it be appropriate to go to a different -- the master

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1 maintenance manual? Or where else for technical data for  
2 that troubleshooting?

3 A It's possible to do that, yes.

4 Q Would you be concerned if maintenance or

5 inspection personnel utilized the original equipment  
6 manufacturer's maintenance manual in lieu of the maintenance  
7 manual effective for that particular aircraft or system?

8 A No, if, in my opinion, in my experience with the  
9 aircraft, if the -- most of the changes that I'm describing  
10 are differences in aircraft or avionics related, there's  
11 very, very few changes to the mechanical operation of the

12 aircraft. That's significant because in the avionics world,  
13 I could go to a chapter in a maintenance manual and see that  
14 the part doesn't even exist in the aircraft. My original  
15 operator's manual will have that equipment. In a mechanical  
16 sense, there's virtually no differences in these aircraft.  
17 There may be some differences in the way you adjust certain  
18 things, given -- I think we've talked about the United

19 versus the Douglas -- but to answer your question, would it  
20 bother me? You'd have to give me a particular instance.

21 Q You just mentioned a moment ago that Emery

22 Worldwide Airlines operated a fairly diverse fleet with  
23 aircraft, talking DC-8s dating back 40 years since  
24 production, operated by not one or two, but probably several  
25 various operators each. How do you know, as the director of

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1 engineering, or how do you expect maintenance or inspection  
2 personnel to realize or recognize that a particular aircraft  
3 may not have been modified in certain areas of maintenance  
4 and therefore, that they are utilizing the proper

5 procedures? What if there had been maintenance that ...  
6 reamed bushings for flight controls, et cetera, that might  
7 have been improved or added to that maintenance manual? If  
8 your maintenance personnel do not look into those manuals  
9 and refer to a generic one not applicable to that aircraft,  
10 wouldn't you be concerned for that?

11 A Well, if you were revising the manuals for

12 certain things like what you're talking about, the -- much  
13 in the same way Tennessee Tech handled their revisions,  
14 there's a circle around the chapter that's affected with a  
15 revision. So there's -- it's a fairly straight forward  
16 process, and maybe I'm not doing it justice, but the  
17 possibilities of getting any wrong procedure, based on a  
18 change in the case of these manuals, is very, very slim.

19 Q I think the other point of my question would be  
20 that in your response you indicated that you wouldn't be  
21 concerned, at least outside the areas of avionics, because



22 you feel these aircraft are fairly similar.

23 A What I hope I left you with is that given the  
24 specific topic, I'm not overly concerned about it, but give  
25 me a specific topic and I would like to address that

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1 individually, as to whether I would think that would be a  
2 problem or not.

3 Q Okay, why don't we move on at this point here.  
4 I'll try to keep that in the back of my mind while I'm

5 asking the questions here, and if I come upon a good  
6 example, maybe I'll use it.

7 A Okay.

8 Q Could you explain how engineering was typically  
9 informed of problems with existing work cards and/or their  
10 associated maintenance procedures?

11 A You say how or?

12 Q Yes, how?

13 A Specifically, I'm not absolutely certain. I can  
14 recall a couple of times when the manager of tech pubs was  
15 approached by an individual, or maybe a phone call, and one  
16 of the cards was questioned about its content or they wanted  
17 to change to make it read better, something along those  
18 lines. There was an official process which -- there was a

19 request for change document which should have been filled  
20 out, and generally speaking, the people that wanted the  
21 changes either didn't feel that they were -- it was that

22     necessary or didn't want to take the time to fill out the  
23     form, but very few of those changes came through that  
24     process. But that was the official way to bring about a  
25     change in the maintenance work cards.

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1           Q     If that process was utilized in accordance with  
2 your maintenance policy and procedures manual, wouldn't the  
3 engineering department be involved in the review of those  
4 requests?

5           A     Sure.

6           Q     Prior to the time of the accident, were you aware  
7 of any problems associated with the D-check work cards  
8 identified within Exhibit 7-K, 7-Kilo, i.e., work card  
9 number 3103, 3502, 3504, or 06?

10          A     3502?

11          Q     Yes, all exhibits within Exhibit 7-K. 3103,

12 excuse me.

13          A     No, I'm not aware with any problems with the  
14 cards themselves.

15          Q     Okay. According to the revision date block  
16 identified on each of the work cards noted, these  
17 maintenance procedures had not been revised since 1992,  
18 therefore would it be fair to state that Emery was not aware

19 of any problems associated with these D-check procedures  
20 since the time of the latest revision?

21          A     The D-check cards are -- the D-checks are very --

22 very spaced out on these aircraft, and they don't get used  
23 very often. That would be an indication of why the revision  
24 date is from '92, which is a fairly long time ago.

25 Q Are you implying that for D-checks -- basically

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1 just let me ask a question. How often would you review the  
2 work packages for, say, a D-check?

3 A If during the course of gathering reliability  
4 data we felt that something needed to be addressed in the D-  
  
5 check, it would be taken care of at that point or be  
6 addressed or looked at in the D-check work cards or by  
7 request for revision or request for change on the cards,  
  
8 would be the times that we would look at it. Otherwise, and  
9 as I said, the time frame between D-checks is fairly  
10 lengthy, and therefore they don't get a lot of exercise.  
11 And that same point, when an issue is brought before

12 reliability as a chronic problem, a D-check is not usually -  
13 - at least in my experience, it's not really the best place  
14 to attack a problem because it is so far out that it would  
  
15 take you a longtime to get the fleet changed or fixed or  
16 modified or whatever would take place.

17 Q So what would be your philosophy on handling  
18 problems that might arise when the aircraft comes in the D-

19 check? Are you suggesting that you would just wait until  
20 the problem arises and deals with it as it comes up?

21 A I'm saying that the work cards were approved and

22 they were working documents. I was not aware, and I was not  
23 informed of any problems or request for changes on these  
24 cards by any party.

25 Q Okay, thank you. Could you please explain how

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1 engineering would track nonroutine maintenance items that  
2 originated due to findings noted during the performance of  
3 scheduled maintenance or inspection tasks?

4 A Reliability based its data off of pilot reports,  
  
5 maintenance reports. In the case of nonroutines, there  
6 would be maintenance items were tracked as a separate set  
7 because there were -- a lot of the nonroutines are -- I'll  
8 say cosmetic, or possibly cosmetic, or ball mat, trays --  
9 roller trays, those type of problems are logged on  
10 nonroutines. It's not something typically that would get  
11 the attention of reliability to change a -- make a change in  
  
12 a program to correct. So those items were tracked a little  
13 bit differently than the pilot reports.

14 Q Okay, thank you. Could you explain why  
15 nonroutine maintenance items identified during scheduled  
16 maintenance were not recorded or entered on the applicable  
17 work card that prompted the initial maintenance inspection  
18 activity?

19 A Could you say that again, please?

20 Q Yes. Could you explain why nonroutine  
21 maintenance items that would arise, or that identified



22 during scheduled maintenance were not recorded, i.e.,  
23 entered - basically linked to the applicable work card that  
24 prompted the initial maintenance or inspection task?

25 A Why they're not entered on the log page?

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1           Q     Right.  If you have a work card, for example, and  
2     I'll just reference the same Exhibit since it should still  
3     be out, Exhibit 7-K, the first card, doesn't matter, any  
4     page, the work cards themselves have no block to enter any  
  
5     nonroutine or any discrepancies noted during this  
6     inspection, or maintenance activity.  And I was just asking  
7     why.

8           A     Are you -- is this two questions?  Are you asking  
9     me why it's not put in the log book, or are you asking me  
10    why the cards don't reflect a nonroutine?

11          Q     No, I'm just asking if you can explain why the  
  
12    nonroutines that are written during an inspection or  
13    maintenance task, are not linked to the original work card  
14    that led to that finding?

15          A     Well, in the case of the C's and D checks, I  
16    believe they are, by task.  In the lower checks, the B-  
17    checks, particularly, there's --

18          Q     Please refer to Exhibit 7-K.

19          A     Yes.

20          Q     Page one, pick any page.  Is there any block on  
21    that particular work card that you're looking at -- I'm

22 looking at card 3103 -- for maintenance or inspection  
23 personnel to enter any such nonroutines for any  
24 discrepancies noted during this task?

25 A No, the nonroutine is linked to the card, not the

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1 card linked to the nonroutine.

2 Q Okay. Now, I'm asking, can you explain why?

3 A No, I cannot.

4 Q Do you think it would be beneficial, if you were

5 doing extensive maintenance and during a D-check, let's say  
6 modifications to the nose structure, where you have cards or  
7 procedures, work orders that engineering had put together --

8 A Those would be treated differently.

9 Q Okay.

10 A Those are generated off of routine inspections.  
11 The nonroutines, specifically with regards to Exhibit 7-K,

12 would be corroded rivets, missing glare shield trim -- those  
13 type of items -- paint missing -- those kinds of things  
14 would be picked up -- I'm not specifically targeting these,  
15 but those are the types of items that you would see coming  
16 out of a nonroutine generated from a routine work card.  
17 Modifications to the aircraft -- those are treated entirely  
18 different. Those are documented. They're not even -- they

19 would never have a nonroutine -- to my knowledge, they  
20 wouldn't have a nonroutine associated with them, unless it  
21 was some side work or the facility that was doing the

22 modification required a nonroutine in order to do the job.

23 Q Is there a link between the nonroutines and the  
24 work cards that originated that finding anywhere else, since  
25 it's not on the work card?

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1           A     It's -- it's on the nonroutine that goes back to  
2 the work card.

3           Q     So essentially you're stating on the nonroutine  
4 there's a reference back to the particular inspection task,

5 i.e., work card?

6           A     I believe so, yes.

7           Q     Okay, thank you. Please refer once again to the  
8 D-check work cards identified within Exhibit 7-K. Could you  
9 explain the rationale behind the note found on each of the  
10 work cards, i.e., "Use applicable DC-8 maintenance manual,  
11 chapter 27, when performing this card."

12          A     The rationale behind that?

13          Q     Yes.

14          A     As we were talking earlier about the coding  
15 system in the Douglas maintenance manual, and once again  
16 I'll refer to the diversity of the fleet, that Chapter 27 is  
17 -- that's the ATA spec 27, main flight controls, will get  
18 you to a section in the maintenance manual. Within that

19 section, given different codes -- Flying Tigers, United,  
20 SAS, KLM -- those different effectivity codes -- this  
21 particular task that's listed on this card may be 2730-7.

22 It might be 2730-4. Rather than try to -- and this gets to  
23 the question I answered about the generic nature of the  
24 statement -- in order to research the entire fleet -- and  
25 remember the fleet changes -- these cards would be nearly

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1 impossible to maintain, and the main reason is because of  
2 the lengthy approval process to get them through the FAA if  
3 you make even an editorial change, that card goes through  
4 the FAA for them to look at.

5 Q Therefore, in your opinion, would it be standard  
6 practice for engineering to utilize this type of generic  
7 reference?

8 A Again, I don't think there's a conscious effort  
9 to be generic. It's --

10 Q Well, let me rephrase this. Let's say you have  
11 an inspection card or work card, let's pick one of these out

12 of seven -- let's say work card, on page three, work card  
13 number 3504.

14 A Okay.

15 Q Looks to be a total of 12 line items or tasks on  
16 this specific procedure.

17 A I think there's ten, but go ahead.

18 Q It carries over onto page four.

19 A Oh. Okay.

20 Q The title of the card, "Install right elevator  
21 assembly". Recorded check date, November 4, 1999 -- and



22 we're going to get into this a little bit further detail a  
23 little bit later here, but in essence this card was opened  
24 two, three weeks. A lot of different people could be  
25 working on this -- personnel at different times, different

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1 shifts. Is it very effective, economically, for Emery to  
2 require the maintenance personnel -- everybody who touches  
3 this card, to do the research that you just identified?  
4 Wouldn't it be better for engineering to specify the

5 appropriate procedures to be utilized?

6 A Now, as I said, when that aircraft would in this  
7 case, go into heavy maintenance, the code that's used for  
8 that aircraft would remain constant throughout the check.  
9 And this work card is basically a work step card, and as the  
10 mechanic, in this case, in the heavy check facility,  
11 accomplished this task, the design of the card is to use, in

12 a kind of a broad sense, and use number two, "Hoist overhaul  
13 elevator into position. Install eyeball -- and I can't make  
14 out the rest of it, but that's a step that's defined maybe  
15 in more detail in the maintenance manual. The reason why  
16 this has got a step that is brought out to a signator or  
17 signing block is so that Emery can be assured that the step  
18 was accomplished as it's listed in this work card.

19 Q Let me try to be a little more specific here.  
20 The question is not accounting for the various steps in any  
21 given particular card. My concern, question, would be more

22 related to ensuring that maintenance inspection personnel,  
23 when conducting a certain task or work card, are utilizing  
24 the proper procedures that identify the correct installation  
25 process for that particular effectivity, whether or not it's

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1 different from serial number 1, 2, 3, et cetera.

2           A     You're asking -- if I get your question right,  
3 you're asking whether or not this is an effective card in  
4 order to insure that the maintenance facility is using the

5 proper effectivity?

6           Q     No, sir, I'm not. I'm asking how engineering can  
7 insure that maintenance or inspection personnel source the  
8 appropriate maintenance manual, utilizing or referring to a  
9 reference such as that listed on this work card or any of  
10 these work cards. How can you be assured, in engineering,  
11 that maintenance or inspection personnel go to the correct

12 manual?

13           A     Well, based on my experience as a mechanic on  
14 these aircraft, the process that you use to select the  
15 proper manuals steers you in the right direction. It's a --  
16 as I said, it's a fairly simple process. It's about the  
17 same as going to the auto parts store and picking up  
18 replacement headlight for your car. You could be in the

19 wrong aisle that sells fan belts, but you go to the aisle  
20 where it says lights, and that's kind of chapter 27. What  
21 type of light do you have is going to be given to you by a

22 number. That would be the code. I mean it's a fairly  
23 straight forward process.

24 Q I would agree, and the question is not based upon  
25 the lack of understanding from the Safety Board's

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1 perspective, but more based upon the assurance that the  
2 maintenance or inspection personnel that are doing work in  
3 association with this card, or any other card, actually  
4 source and utilize the appropriate maintenance manual?

5 A I -- I'm going to have to say i don't know.

6 Q Was it standard practice for the engineering  
7 department to include supplemental instructions on work  
8 cards, i.e., the information that was important to the  
9 maintenance or inspections to be performed, however, that  
10 did not exist within the applicable maintenance manual  
11 reference?

12 A Can you give me a specific instance?

13 Q Hold on one second. You want a specific one with  
14 an Emery work card or --

15 A I need to understand and see what you're talking  
16 about -- supplemental information --

17 Q Well, let's just say generally, you're in  
18 engineering today, you're engineer, structural engineer

19 assembled a work card for an upcoming D check where you want  
20 to inspect a ... elevator assembly. Let's say this is  
21 related to the CPC program -- it doesn't really matter. And

22 in that card you identify, you know, in line with these  
23 various work cards within Exhibit 7-K, a standard reference  
24 to utilize the appropriate maintenance manual. And let's  
25 say that for the purposes of this scenario that the

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1 inspection that you want is a very thorough inspection,  
2 string D check, you actually want to require that  
3 maintenance remove the elevator for example, let's say  
4 disassemble the leading edge, look for corrosion.

5 On the work card itself you might have a generic  
6 reference such as these in Exhibit 7-K, saying use the  
7 applicable maintenance manual.

8 A Can I stop you at this point?

9 Q Sure.

10 A And can we use a different scenario than CPCP  
11 because that -- you're getting into --

12 Q Forget I mentioned CPCP programs. We're going to  
13 use the same example, your engineer is writing a card for  
14 upcoming D check to pull off an elevator, to remove the  
15 leading edge, to do an inspection for corrosion. The  
16 applicable work card that's finally signed off by  
17 engineering, by Emery, and issued for this particular work  
18 to be performed includes a generic statement indicating

19 refer to the applicable maintenance manual, and therefore  
20 there is no specific reference to a maintenance manual  
21 reference, and generic work steps, essentially stating



22 remove elevator, disconnect leading edge, perform inspection  
23 for corrosion. Reassemble. Reinstall. And that's  
24 essentially the content on the work card itself.

25 Now, let's take this scenario to another step.

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1 Let's say the applicable maintenance manual is manual one.  
2 Chapter 27 -- doesn't matter. For this applicable work --  
3 and let's say this particular aircraft, in this particular  
4 instance, we have a new mechanic, a new inspector that's  
  
5 involved with this work card or this procedure that's  
6 expected. They, for whatever reason, incorrectly identify  
7 the manual that they feel they should be using, and in doing  
8 so follow a procedure for removal, installation -- doesn't  
9 matter, take your pick -- and they inadvertently cause  
10 damage to the aircraft, injure somebody, miss an area of  
11 vital inspection.

12 So once again, my question would be, not related  
13 to the process of identifying what the applicable  
14 maintenance manual would be for a particular serialized  
15 aircraft while in D-check, C-check, B-check, doesn't  
16 matter -- my question is, are you concerned from an  
17 engineering standpoint that there might be individuals out  
18 there that might be challenged due to work load issues,  
  
19 might be newer personnel -- for whatever reason -- might  
20 incorrectly identify the applicable maintenance procedures  
21 and thereby miss something, inadvertently cause something

22 that might affect the safety of flight?

23 A The concern regarding the possible misuse or  
24 incorrect use of the manual is mitigated because, in my  
25 opinion, personally, that the facility that's using the

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1 maintenance manual has been certified by the FAA and has  
2 been found to be competent and capable of identifying the  
3 correct manuals and using the processes in those manuals to  
4 perform maintenance on a given aircraft. And they are given

5 that capability, certified by the FAA to perform that  
6 maintenance. I understand there may still be some gray area  
7 about --

8 Q That's fine. Now let's continue the scenario  
9 back to this question. We're in the same set of conditions  
10 here. The initial question was, was it standard practice  
11 for the engineering department to include supplemental

12 instructions on work cards, essentially for those cases  
13 where the appropriate maintenance manual, let's say the  
14 individual has it in hand, he's got the applicable  
15 maintenance manual. But for whatever reason, this specific  
16 reference is missing a vital step, or due to past  
17 experience, whether it be an incident, economic reasons or  
18 otherwise, engineering or that appropriate operator has to

19 determine that we need to supplement the information that's  
20 in this maintenance manual, and for whatever reason they  
21 have not already gone through the revision process for that

22 appropriate manual. Would engineering at Emery, include the  
23 necessary supplemental information on that specific work  
24 card? Is that a standard practice?

25 A In my experience, we had a form called a request

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1 for technical services for the engineering department. And  
2 I hope I'm answering your question, but in that form,  
3 anybody --

4 Q Let me -- I hate to interrupt but we're to stay

5 on topic here. We've already gone through that at this  
6 point here.

7 A But this is a different process, this is just a -  
8 - this is just identification of a problem, and I don't care  
9 where it was -- a problem on a line, problem with heavy  
10 check, problem with the type of information needed,  
11 clarification from a technical standpoint -- that request

12 for technical services would come to engineering and we  
13 would resolve it internally, and I'm not aware of that  
14 process being used in this context. In other words, I'm  
15 saying I've never seen, to my knowledge, I've never had that  
16 happen to me.

17 Q Okay, so process aside, what I was really asking  
18 about is if engineering had already made the determination -

19 - I didn't care about the process -- but had made the  
20 determination, had recognized that a particular procedure  
21 that the company knew was going to be an upcoming procedure

22 or maintenance task, inspection, and you had an existing  
23 work card -- so in other words, somebody has made a request  
24 at some point, now it's up to engineering at this point, and  
25 now this aircraft is scheduled in for D-check next week.

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1       Would you ever include that type of supplemental information  
2       on the work card itself, such that maintenance or inspection  
3       personnel would be apprised of the additional cautionary  
4       information they require?

5               A       Given the specifics that you've given me, such as  
6       what's going in the check next week, it would be impossible  
7       to adapt that into a work card in that time frame, because  
8       of the approval process. Now it may be part -- and I'm only  
9       speculating based on what I'm understanding you to say, but  
10       there's a work scope sheet that goes with the aircraft that  
11       is in some cases it's revised as the check progresses and

12       possibly that avenue may be taken. I'm not -- and if you're  
13       asking whether I knew or whether engineering knew if there  
14       was a problem with the card would we address it before it  
15       went out, the answer to that question is yes, given time and  
16       authority and the MRB voted on that change, yes, absolutely.

17               Q       Just keep in mind this example is just off the  
18       top of my head, so a week time frame is --

19               A       Well, -- okay, that's why I needed specifics.

20               Q       Let me follow onto a comment to your response,  
21       then. Let's say you are pressed for time and due to the



22      cumbersome revision process for your program at Emery, we  
23      still have the same aircraft coming in, scheduled for a D-  
24      check, and you recognized at the engineering level or the  
25      maintenance level that there was a discrepancy in the

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1 program -- in a card -- in a reference, and wanted to get  
2 out this additional necessary information to maintenance or  
3 inspection personnel. How would you do that?

4 A If it was brought to my attention like that that

5 there was a deficiency in the cards, I knew there was a  
6 problem or there would be a problem, I would expedite a  
7 change to the card, hand walk it through the MRB and in the  
8 case of -- when the certificate moved to Cincinnati, I would  
9 if I had to, drive to Cincinnati, meet with the PMI, express  
10 the concern about expediting the card and the approval  
11 process and bring it back to prevent any damage or any

12 problems to the aircraft.

13 Q Alright, thank you. Let's refer back to Exhibit  
14 7-K once again. Parties keep these out --

15 A I never left it.

16 Q And let's take a look at D-check work card number  
17 3103, it should be page one, lower right hand corner. The  
18 card is titled, "Remove the right hand elevator and tabs."

19 Could you please read the check date noted on the work card?

20 A Check date was September 7, 1999.

21 Q Would you expect the date entered on this work

22 card to accurately reflect when each of the work steps  
23 associated with this work card were actually accomplished?

24 A I'm not sure. I'm not sure what prompts the date  
25 to be put on the card, whether it's when it goes into work,

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1 out of work, some time in between. I really couldn't answer  
2 on that.

3 Q I guess essentially what I'm asking is this  
4 particular card only has three items, it's a pretty easy

5 card. We have a final check date -- I'm assuming this is  
6 the date that this card is signed off as being completed in  
7 its entirety. There's really no way to tell on this card if  
8 item one was performed last month, item two last week and  
9 item three today. Is that correct?

10 A That is correct.

11 Q Do you have any concerns regarding that from an

12 engineering standpoint? Not necessarily on this particular  
13 card, but cards that might be more involved?

14 A From an engineering standpoint? Sure. The 145  
15 maintenance facility is hired to basically manage the  
16 process and to insure certain quality is built into the  
17 product. In the management of that process, this is a tool  
18 for Emery to use to insure that all steps were complied

19 with. The management of that process, whether step one was  
20 done last week and step two was done this week -- as long as  
21 the steps were accomplished, and they were accomplished in

22 accordance with the applicable maintenance manual, I don't  
23 necessarily have a problem unless there's some expiration  
24 dates, or there's some work conflict that happens with the  
25 check. I don't specifically have a concern about the

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1 timing.

2 Q How can you be assured that there is no work  
3 conflict with an extended card, say a procedure that's open  
4 three, four weeks?

5 A I have had, in the course of some C-checks, prior  
6 to the engineering department, the maintenance reps on site,  
7 they would kind of initiate a process to say, you know,  
8 these two things -- you shouldn't have these two together.  
9 If there was a problem with the flow of the work via the  
10 work cards, or if a facility was having a hard time  
11 accomplishing the work cards because of the way that they  
12 were ordered or written, or distributed -- anything of that  
13 nature, that would come back through the maintenance reps.  
14 We would try to identify -- and again, this did not happen  
15 since I was the director of engineering, but I have been  
16 witness to the process. They would come back, there would  
17 be some dialogue between the heavy maintenance provider,  
18 Emery's heavy maintenance group, and tech pubs to decide  
19 what can be done about managing the process better, either  
20 by changing the cards or by some other fashion.

21 Q Okay. During previous testimony, Mr. Hall

22 described steps that Tennessee Technical Services have taken  
23 in the past to insure that their maintenance personnel  
24 performed an adequate turnover of maintenance activities  
25 that extend beyond one work shift. I think this pertains

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1 directly to this discussion here and the subject at hand.

2 Can you explain how Emery's maintenance program meets the  
3 manual requirements of Federal Aviation Part 121.369?

4 A Is that an Exhibit?

5 Q Subpart B, step 9. Yes, that would be an Exhibit  
6 7-T. I'll give you a couple minutes to find that.

7 A You say 7-Tango?

8 Q Yes, and I plan on reading the appropriate  
9 section here. 7-Tango, pages six and seven.

10 A Okay, found it.

11 Q Six and seven.

12 A Pages six and seven?

13 Q Right. 121.369, subpart B, step 9. My question  
14 being, can you explain how Emery's maintenance program meets  
15 the manual requirements of this particular FAR, specifically  
16 that the certificate holder's manual contain the procedures  
17 to insure that required inspections, other maintenance,  
18 preventive maintenance or alterations that are not completed

19 as a result of shift changes or similar work interruptions  
20 are properly completed before the aircraft is returned to  
21 service? In other words, once again we're referring to a



22 card that might be opened, detailed work package might be  
23 open -- for two months if it's in D-check.

24 A Right. Prior to selecting any heavy maintenance  
25 provider, there's an audit conducted on that facility. The

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1     audit is there to insure that they comply with all the  
2     applicable regs -- and I'm stepping outside of my area of  
3     expertise, but I know that I have seen -- I've seen the  
4     audit paperwork. I know that some of these things in here

5     are addressed as to whether they're satisfactory or  
6     unsatisfactory procedure at the facility. I'll have to  
7     refer -- I don't have the document in front of me --

8             Q     Well, I'm really more interested in just your  
9     concern from an engineering standpoint, as the director of  
10    engineering. Essentially Mr. Hall, yesterday, testified  
11    that, if I recall correctly, TTS put in place a system, for

12    whatever reason, and keep in mind they are working to  
13    Emery's Part 121 maintenance program, but for whatever  
14    reason, felt it necessary to supplement that program with  
15    in-house instructions whereby, for those types of cards in  
16    this instance, where there would be shift changeovers, they  
17    would attach maintenance manual procedures et cetera, and  
18    stamp off each individual step, et cetera.

19             Obviously, that amount of detail is not in any of  
20    these work cards that we're talking about that we're  
21    concerned with today, and I'm just -- I'm just curious. The

22 question once again would be, how can Emery insure that a  
23 repair station, TTS or otherwise, actually fulfills the  
24 entire intent to the scope of a particular maintenance  
25 action or inspection, especially one that is so drawn out

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1 that might be open two, three, four weeks?

2 A That's the job of the card, I would agree.

3 Q Let's move on.

4 A Okay.

5 Q Please refer to Exhibit 7-K again, pages three,  
6 four and five. Once again we're talking about work cards  
7 number 3504, top right hand corner on page three and four,  
8 and work card number 3506 on the bottom of the page.  
9 Wouldn't you agree that based upon the completion dates  
10 recorded on these cards, and the fact that the cards are  
11 worked in conjunction with one another, that work card 3504  
12 remained open for more than two weeks?

13 A In conjunction -- you're saying that both these  
14 cards were worked in conjunction with each other?

15 Q Yes, if you refer to page six --

16 A Yes, I see that.

17 Q Okay.

18 A And you're asking?

19 Q Essentially to confirm that the work that was  
20 initiated on work card 3504 was initiated at some point on  
21 or before November 4, 1999, but was not completed until

22 November 4, 1999. Excuse me, the first date should have  
23 been October 14, '99, and was not completed until November  
24 4, 1999.

25 A Again, I have to say that I don't know Tennessee

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1 Tech's procedures on what initiates someone to put a date in  
2 that block, so I have no idea of the activity behind these  
3 two cards marrying up.

4 Q Keep in mind, the questions I'm asking are from  
  
5 an engineering standpoint, and I, myself, as an engineer,  
6 I'm more interested in the procedure here, the mechanics of  
7 the system here. What you're indicating here is, and I  
  
8 realize that we haven't stopped, and if necessary we can so  
9 you can read through these two cards and think about this  
10 for a minute, but I'd have to say that I know myself,  
11 Captain McGill, first couple times we went through these  
  
12 cards, it is quite confusing to see when you first key in on  
13 these approval dates, how, when you're performing work card  
14 3504, which is installation of the right elevator assembly  
15 procedures, and then refer to 3506, functionally check the  
16 right elevator and tab, something which must happen after  
17 the elevators are obviously installed, how then the  
18 completion date on that work card can be at an earlier date?

19 And I know the answer at this point, so I'm not asking for  
20 that.

21 A You're asking if it's a concern -- an engineering

22 concern?

23 Q Essentially that's where I was going, but  
24 initially the question was, essentially by looking at these  
25 two dates and realizing that they're worked in conjunction,

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1 realizing the work scope that a) you have to install these  
2 elevators before you can do a functional check, check ... et  
3 cetera, that yes, this work card 3504 had to have been open  
4 for two and a half weeks or more. And then leading up to

5 your response, yes, would you as the director of  
6 engineering, be concerned that you don't have an appropriate  
7 turnover process or something in place?

8 A I would have to review Tennessee Tech's specific  
9 turnover process to see if it was a concern. Engineering  
10 typically does not get involved with the auditing process.  
11 Once the cards are --

12 Q Excuse me. I'm not asking about an auditing  
13 process. I'm talking from an engineering standpoint, now.  
14 Engineering at Emery has developed these cards --

15 A Right.

16 Q -- but we're not talking about TTS or any other  
17 vendor's turnover policy or in house procedures,  
18 supplemental or otherwise, to the operator's 121 maintenance

19 program. I'm only discussing, and really only require  
20 responses to the work cards from Emery, and Emery's  
21 perspective pertaining to the content of these work cards.



22 Are you concerned, from an engineering standpoint, for those  
23 maintenance items, inspection or otherwise, for which cards  
24 are open for extended periods that that maintenance may or  
25 may not -- essentially that maintenance might be missed due

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1 to the signoffs on these cards.

2 A If they follow the applicable maintenance manual  
3 in its entirety, there should be no problems with these  
4 cards.

5 Q Would you agree that would only be the case if  
6 the work card itself is adequate --

7 A No --

8 Q Could you explain your reasons why?

9 A The work card is not meant to be the document  
10 used to perform the maintenance. It's a direction to the  
11 applicable maintenance manual. The work card is used to --

12 for Emery to document that the steps listed were performed.

13 Q Once again, this gets back a few minutes ago to  
14 the discussion about supplemental instructions. I think you  
15 would have to admit that any of us working in the aviation  
16 have stumbled across, whether we specialize in avionics  
17 systems, structures, power plants -- doesn't matter, the  
18 maintenance manual is not infallible, neither is the

19 illustrated parts catalog. Member Goglia mentioned that  
20 earlier. I don't think I've ever picked up an illustrated  
21 parts catalog and not been able to find a mistake on the

22 page I'm looking at.

23                   If the work cards merely refer to a maintenance  
24 procedure, and as you previously indicated, there's a  
25 lengthy period, still undefined, between the review of these

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1 D-check packages, which would include not only the scope of  
2 the specific verbiage included within the work card itself,  
3 but also that of the applicable maintenance manuals or other  
4 technical data, how can you be assured that maintenance or

5 inspection personnel are going to perform the task properly?  
6 Even if they have the appropriate manuals, how are you going  
7 to be assured, when the cards are open this long, that

8 they've step by step completed the appropriate tasks, that  
9 they haven't missed a bolt, or a safety, or a security?

10 A The only answer I can give you is to witness it  
11 myself step by step, that's it. That's the only way I can

12 be absolutely certain that every step is accomplished is to  
13 witness it myself. Outside of that, I -- I'm -- and maybe  
14 I'm missing your point, but I don't understand -- these are  
15 steps, this is what the cards are designed, straight out of  
16 the parent document, which is the Douglas tech, that's used  
17 to validate these steps were taken.

18 And I realize there are errors in the maintenance

19 manual and the IPC and the wiring diagrams and -- there's  
20 errors, there are typos, there's issues with every  
21 maintenance manual I've ever seen. They're human errors.

22 If I was to try to duplicate that process on this card, I'm  
23 just as likely to introduce the same human errors or  
24 different ones.

25 Q Wouldn't you agree that one of the roles of

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1 engineering would be to ... mitigate the number of human  
2 errors that are out there --

3 A Yes.

4 Q -- and therefore being very specific? Alright,

5 thank you. I got a little bit off track here, but, could  
6 you refer back to line item two on the same card?

7 A Card 3504, item two.

8 Q Actually, I'm not sure if I'm not a little bit  
9 out of sequence here or not here. Let's just back up here.  
10 Refer to card 3103, so it's page one. Could you please read  
11 line item two?

12 A "Remove right hand elevator control tab. Bag and  
13 attach all parts to tab."

14 Q Okay, thank you. Could you also confirm that the  
15 two remaining steps on this work card, i.e., line items one  
16 and three, include similar instructions regarding the  
17 retention of hardware during the removal of the right hand  
18 elevator and gear tab?

19 A Yes.

20 Q Okay, thank you. According to the records  
21 associated with the accident aircraft on September 9, 1999,

22 Tennessee Technical Services performed a receipt inspection  
23 of the right hand elevator that was ultimately installed on  
24 November 8079 Uniform. For the record, this occurred two  
25 days following the removal of the existing right hand

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1 elevator, in accordance with work card number 3103. Once  
2 again, the check date assigned was 7 September 99 on work  
3 card 3103. Therefore, is it safe to assume that in planning  
4 for this particular D-check, Emery intended to replace the

5 elevator and tabs removed from the aircraft with overhaul  
6 flight controls?

7 A I can't speak to what -- I didn't get involved  
8 with the heavy maintenance planning process.

9 Q Do you happen to recall when the aircraft entered  
10 the TTS facility for its D-check? Roughly?

11 A October -- I'm taking a guess, I don't know.

12 Q Can you refer back to card 3103 and look at the  
13 accomplishment date for the --

14 A Okay, September, sorry.

15 Q Okay, so at least September, and departed D-check  
16 November 19th. Was the engineering department aware that  
17 the elevator assemblies on this aircraft were to be replaced  
18 in lieu of overhaul?

19 A Specifically, no.

20 Q I guess this is essentially the same question I  
21 just asked here. If not, can you explain why not? Why



22 wasn't engineering made aware of these plans so that you  
23 could have included supplemental maintenance instructions on  
24 the work card related to the retention of hardware and  
25 disposition of the flight controls? So once again, we're

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1 referring to card 3103.

2 A And your question why the card stipulates to bag  
3 all parts?

4 Q More or less. Well, essentially, to summarize  
  
5 the trend of events, November 8079 Uniform entered TTS for  
6 D-check. For whatever reason, existing elevator flight  
7 controls, including tabs, both sides, would be removed and  
8 would be replaced with overhaul units. Card number 3103,  
9 within the Exhibit here, handles the directed maintenance  
10 procedures for TTS to follow during that removal process.  
11 It's fairly basic here. We've just gone through, really

12 only care about item two at this point, but all three steps  
13 indicate bag and attach all parts to the elevator.

14 And therefore, my question is, since Emery, not  
15 necessarily yourself, but somebody within Emery was  
16 cognizant of the fact that these elevators would be  
17 ultimately replaced with overhauled units, don't you think  
18 it would have been appropriate to provide supplemental

19 instructions on this card or otherwise, such that TTS could  
20 do something differently with these parts that had been  
21 removed during the performance of card number 3103? For

22 whatever reason, the decision was that the overhauled flight  
23 controls would --

24 A Well, the step tells you, "bag and attach all  
25 parts to the tab" which is removed and sent out, so the

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1 parts don't exist at Tennessee Tech anymore, they would have  
2 to use new parts.

3 Q Okay, thank you. We'll come back to this in a  
4 minute. Please revert to the same Exhibit, page two. Work

5 card number 3502, titled "Install right elevator tabs". Can  
6 you explain why there are five inspector stamps, including  
7 what appears to be two stamps for step five, when the work  
8 card merely requires inspections related to steps one and  
9 five?

10 A No.

11 Q Based on the information recorded on this work

12 card, can you determine who was actually responsible for the  
13 maintenance and inspection tasks identified? This question  
14 goes beyond identifying inspector stamp or an A&P

15 certificate number, and refers specifically to those line  
16 items where there are multiple stamps or signatures.

17 A No, not on this copy, no. I may be able to if I  
18 really studied it, but it would be difficult.

19 Q Copy aside, assuming you had the original before  
20 you now, would you be concerned from an engineering  
21 standpoint if you had two inspector stamps in one block,

22     which are clearly distinct, two different individuals looked  
23     at something.  Why did that happen?  What were the findings?  
24     Did the first individual note something he was concerned  
25     with that was ultimately resolved by the second?

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1           A     In -- in my years as a mechanic, I have seen many  
2 instances where people have used RII authority signatures  
3 and inspector stamps outside the confines of what's required  
4 by the procedures because they felt this was a critical  
  
5 step, and I'll be honest with you, sometimes it's a matter  
6 of just laziness that rather than go look at the proper  
7 documents to see whether or not it's required, you put a  
  
8 stamp. It's the safe thing to do. You put a stamp on  
9 there. I can't tell you why this was like this. I can tell  
10 you -- am I concerned about it? Does it make me concerned  
11 that I had two inspectors instead of one looking at this? I  
  
12 don't think so.

13           Q     Aren't you really referring to a normal  
14 maintenance task that possibly somebody has stamped off as  
  
15 an inspector in addition to the requirement, the sole  
16 requirement for the maintenance individual to sign off?

17                     That's totally different than the question at hand.  
18 The question would be referring to item number five, which  
  
19 requires an inspector's stamp, and there are two inspectors  
20 stamps. So my question once again would be, are you  
21 concerned that there's not something else evident or that

22     transpired during the performance of this inspection,  
23     "Inspector verify control and gear tab installation and  
24     security."

25             A     First all, this is a normal maintenance task, or

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1 whatever way you phrased it. This is a routine card, okay,  
2 first. Second of all, I'm not that concerned that I had two  
3 sets of eyes instead of one required. This would not cause  
4 me concern except for divergence from procedures at the

5 facility, if you want to be honest about it.

6 Q That's exactly where I'm at. How can you be  
7 assured, from a quality standpoint, from an engineering  
8 standpoint, that we don't have a deviation here? That  
9 something hasn't occurred that should have, or should have  
10 that shouldn't have?

11 A Short of witnessing it myself, I cannot.

12 Q Do you not think that's part of engineering's  
13 responsibility in putting together these programs?

14 A You're asking me if the result of two people  
15 making a stamp on a card that clearly calls for one in the  
16 development stage, if I'm concerned at the development  
17 stage? I'm kind of confused, I think.

18 Q I think we all are here, but hold on. My next

19 question was going to be how do you prevent additional sign  
20 offs such as these, but it doesn't appear that you're  
21 concerned with that, so --



22           A     I don't want to give the impression that I'm not  
23 concerned.  It's that I don't have any control over the  
24 process unless I'm physically there.  If you're going to ask  
25 me if these cards are perfect, no, they're not.  They are an

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1 evolution process, and I'm sure MSG-3 would provide better  
2 cards. In fact, Emery was going in that direction.

3 Q Excuse me, a few minutes ago you said you didn't  
4 want to get into MSG-3 and the CPCP program --

5 A Well, the reason I said that before is because  
6 this MSG-2 type card does not include corrosion and SIDS  
7 (ph) and things of that nature. MSG-3 does. That's why I -  
8 - there's a significant change between the two, MSG-2 and  
9 MSG-3, and that's -- and it wasn't that I didn't want to get  
10 into it, it was that there was a -- from my perspective, it  
11 was a difficult analogy to comment on.

12 Q Alright, as previously noted, work card number  
13 3502, once again, page two of the same Exhibit, includes the  
14 following note: "Use the applicable DC-8 maintenance manual,  
15 Chapter 27". For the record, could you identify the  
16 applicable maintenance manual that maintenance personnel  
17 should have utilized when accomplishing this task?

18 A Can I?

19 Q Yes.

20 A Using the aircraft tail number, yes, I could.

21 Q No, today before you, here. It's one of the

22 Exhibits that's entered. You've indicated before that  
23 you've been a party to the investigation. I know you've  
24 been involved with the air worthiness group findings to  
25 date. This is an area you should be intimately familiar

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1 with.

2 A Yes. I know which code it is, at least I'm  
3 pretty sure, but --

4 Q Alright, please note for future reference for the

5 record, that DC-8 maintenance manual Chapter 27- 32-06 from  
6 Exhibit 7-L is the appropriate maintenance manual procedure  
7 for this tail number. Could you please refer to Exhibit 7-

8 L? Do you have the Exhibit before you now?

9 A Yes, I do.

10 Q Could you identify the revision date on the  
11 bottom right corner of the applicable instructions?

12 A First page?

13 Q Yes.

14 A September 9, 1986.

15 Q Okay, thank you. Now referring back to work card  
16 number 3502, could you please read step three for the  
17 record?

18 A 3502?

19 Q Yes, found on page two.

20 A Card one --

21 Q There's only one card there. Card one of one.

22 It's five steps.

23 A Step two?

24 Q Please read step three.

25 A Three. "Install overhauled elevator control tab

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1 to elevator."

2 Q Okay, thank you. Can you explain how engineering  
3 expected maintenance personnel to correctly identify and  
4 source the parts, including hardware, required for this

5 installation, when as previously noted, work card number  
6 3103 instructed maintenance personnel to bag and attach all  
7 parts to those flight control surfaces that were previously  
8 removed?

9 A You're asking how they were supposed to get the  
10 hardware to do the installation?

11 Q That's correct.

12 A Go to the IPC.

13 Q Why would you -- or can you list off, from the  
14 top of your head, what parts would be needed to -- what  
15 we're talking about here -- install right elevator tabs. So  
16 control tab, gear tab. Can you list -- are you familiar  
17 with all the components, all the hardware that would be  
18 necessary?

19 A To be quoted at it? No.

20 Q Generally?

21 A I mean there's --

22           Q     Why would you expect maintenance personnel, once  
23 again, for a card -- some of these cards have been opened,  
24 are open for extended periods, it's not uncustomary for that  
25 to be the case -- why would you expect -- why would you have

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1 an engineering department? Why would you expect maintenance  
2 personnel for each individual that touches this card has to  
3 work on this, has to go back to the maintenance manual, to  
4 the IPC to identify what parts are necessary? What if there

5 was --

6 A It doesn't take two weeks to hang an elevator, or  
7 a control tab. That process would require hardware to  
8 attach it. You would have to go to the IPC to get the  
9 hardware, attach the tab or the elevator at that point.  
10 Now, after that happens, there could be a two week interval  
11 where there's no activity because they're doing other cards.

12 That doesn't mean that every mechanic who walks by it or  
13 looks at the card is going to the maintenance manual or the  
14 IPC or the stores to get hardware. That's not the case.

15 Q Keep in mind, the reason we are here today, at  
16 least one of the major reasons we are here today is to a  
17 missing bolt. Now obviously, the Safety Board has not made  
18 final determinations yet regarding probable cause for the

19 accident, however, I have to believe that everybody in this  
20 room that's intimately familiar with the investigation  
21 findings to date -- it's a matter of public record --



22 realize that we have a missing bolt on the right elevator  
23 control tab, push rod attachment to the crank fitting for  
24 elevator control tab. Wouldn't you agree that work card  
25 3502 for this particular accident aircraft, which is titled

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1 "Install right elevator tabs", step three, "install  
2 overhauled elevator control tab to elevator" has any bearing  
3 on why we're here today? And isn't the hardware that's  
4 required to install the control tabs the subject of

5 discussion? Isn't that why we're here? And therefore,  
6 wouldn't the identification, proper identification of what  
7 should or should not be installed, and whether or not it  
8 should be safetied, be discussed here?

9 A Yes, it should.

10 Q You're essentially indicating that these parts  
11 were removed, they were shipped out because the elevators

12 were shipped out. I guess I would contend, from an  
13 engineering standpoint, that that would be a poor practice.

14 A Perhaps it's being shipped out so that they don't  
15 use old hardware to reinstall the new elevator.

16 Q Alright, let's move on. Can you explain why the  
17 work card does not indicate the required hardware to be  
18 installed during this installation, and once again, I'm

19 referring specifically to work card 3502, step three,  
20 "Install overhauled elevator control tabs to the elevator" -  
21 - and if you know, this is for the right side only.

22           A     The reason why it doesn't indicate it is because  
23     this is formatted in accordance with the government's  
24     original documents and MSG-2 processes.

25           Q     And I'll finish your answer, based on previous

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1 testimony you've given a couple times, the work card refers  
2 back to the appropriate maintenance manual procedures, is  
3 that correct?

4 A Yes, it does.

5 Q Okay, thank you. I'm going to jump ahead here a  
6 little bit here, and in the interest of trying to save some  
7 time, but I would suggest you refer to Exhibit 7-L again,  
8 and the question being since the applicable Emery  
9 maintenance manual instructions, i.e., 27- 32-06, found in  
10 Exhibit 7-L that was to be used during this installation did  
11 not clearly identify the hardware to be utilized, can you

12 explain how the engineering department expected maintenance  
13 personnel to correctly identify, install and secure the  
14 necessary hardware?

15 A The lower side of that card, under C, referenced  
16 procedures, it does list the illustrated parts catalog on  
17 that front card.

18 Q Excuse me, can you say that again?

19 A Yes. Under two, special tools and materials,  
20 there's reference procedures, C, 2a, is reference to the  
21 illustrated parts catalog.

22           Q     Which, if you refer to the last page of Exhibit  
23     7-L is attached to this procedure?

24           A     Okay.

25           Q     Let me ask once again, -- let me back up I guess

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1 we're not going to save time here. Could you identify  
2 anywhere within this specific Exhibit, maintenance manual  
3 Chapter 27-3206, would you please identify the hardware  
4 required to connect the right elevator control tab push rod

5 to control tab crank fitting attachment?

6 A All the parts?

7 Q Yes, please.

8 A I could -- you want me to analyze each part or do  
9 you want me to just give you a general answer?

10 Q I thought I led this question enough. For the  
11 life of me, I can't find dick in this manual.

12 A If pages six and seven don't show the required  
13 parts, then it's not here.

14 Q Well, I think we need to establish this for the  
15 record, so I'd ask you to take a few minutes reading with  
16 you this maintenance manual procedure.

17 CHAIRMAN GOGLIA: Certainly. Why don't we take a  
18 15 minute break while the witness, who doesn't get a break,

19 prepares.

20 MR. PUDWILL: Thank you, Mr. Chairman.

21 (Whereupon, a 15 minute recess off the record was

22 taken.)

23 CHAIRMAN GOGLIA: Continue.

24 MR. PUDWILL: Thank you, Mr. Chairman.

25 BY MR. PUDWILL:

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1           Q     Once again, we were viewing Exhibit 7-L, which is  
2     the applicable maintenance instructions that should have  
3     been utilized, I'm assuming were utilized, to install the  
4     right elevator control tab. Mr. Robbins, can you confirm

5     now whether or not this Exhibit, this maintenance manual  
6     procedure identifies the required hardware at the pushrod  
7     control tab crank fitting at the attachment?

8           A     It's missing a part.

9           Q     Can you be more specific?

10          A     Yes, it's missing a cotter pin.

11          Q     Walk me through your findings here.

12          A     The nearest I can tell --

13          Q     Please refer to the appropriate page.

14          A     I'm on page six.

15          Q     Okay, let me back and ask one question first.

16     Did you find any mention made of the hardware to be  
17     installed at this location and the verbiage -- the work  
18     steps leading up to the illustrated parts catalog?

19          A     I wasn't asked to do that, I don't think. You  
20     asked about the parts.

21          Q     Well, the intent was to identify whether or not



22 the hardware required for this installation is identified  
23 anywhere within this reference. The illustrated parts  
24 catalog is part of this chapter, 27-3206. Let me walk you  
25 through it. Let's go to page two. Specifically, step

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1 three, removal and installation. See this maintenance  
2 procedure could be used for either.

3 Proceed to page three, subpart D near the bottom  
4 of the page, step two. "Connect tab pushrod to tab crank

5 and secure." Do you have the same step before you?

6 A Yes, I'm there.

7 Q Do you see any mention made of hardware required  
8 at this location in the verbiage on D-3?

9 A No.

10 Q At D-2, I'm sorry.

11 A D-2, no, I do not.

12 Q Okay --

13 A Except for the reference to secure, but that's  
14 not a part.

15 Q Just for the record to speed this up, then, the  
16 hardware required is not identified anywhere within this  
17 chapter within the verbiage, the maintenance instructions  
18 themselves. So therefore that leaves the illustrated parts

19 catalog. Can you walk us now through the findings that you  
20 have referring to the figure on page 1001 or page six of  
21 this Exhibit?

22           A     Stand by one -- if you can give me just a second.  
23           Q     Sure.  
24           A     Okay, can you go to page six, you said.  
25           Q     Yes, sir.

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1           A     Okay, I'm there.

2           Q     You started to indicate that everything was  
3 depicted other than the cotter pin. Can you explain what  
4 you mean?

5           A     Item 10 on page seven is a cotter pin. It's only  
6 listed on the Exhibit page six in one place, and that's the  
7 forward part of the control push rod.

8           Q     Okay. But still, using this Exhibit, this  
9 maintenance manual reference, this illustrated parts  
10 catalog, once again, page 1001, which depicts figure 1001 of  
11 this installation. Do you -- can you identify for the  
  
12 record where the tab crank fitting is located?

13          A     The lower right hand corner.

14          Q     It's kind of hard to miss. It's labeled as such.  
  
15 Can you see where the push rod attaches to this crank  
16 fitting, just above that nomenclature?

17          A     Yes, I can.

18          Q     Can you confirm that is the bolt we are talking  
  
19 about here today, correct?

20          A     That is correct.

21          Q     Is there a reference on this figure indicating

22 what hardware is required for this installation?

23 A Not on this figure, no. If I can interject a  
24 bit?

25 Q The question is, can you identify anywhere on

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1 this Exhibit, on this figure or the associated parts list on  
2 the next page, the hardware for this installation?

3 A If I knew what an AM 310-5 nut looked like, in  
4 other words, was it castellated (ph), fiberlocked (ph), or

5 some other type of nut? If it was a castellated (ph) nut,  
6 that would be a very good clue that a cotter pin was  
7 required to safety, however it's not listed on figure six or  
8 page six of this Exhibit.

9 Q Excuse me, can you please explain why you're  
10 referring to item eight?

11 A Maybe I'm -- item eight is -- if you look on page  
12 six, above where it says inboard hinge bolt --

13 Q Right.

14 A It lists items eight, seven and six.

15 Q Correct.

16 A Eight is a nut.

17 Q I would not disagree with you there.

18 A If it's a castellated (ph) nut, that would be --

19 the only reason you use a -- you only use a castellated (ph)  
20 nut in conjunction with a cotter pin, but as I pointed out,  
21 the figure on page six does not indicate an item 10 or

22 cotter pin to be installed.

23 Q Let's back up a little bit here. Emery's  
24 engineering department issued a fleet campaign directive.  
25 We have several Exhibits in here, I don't think it pays at

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1 this time to refer to the particular Exhibit, but we can if  
2 necessary -- the one off the top of my head would be Exhibit  
3 7-M, which is, I believe, A-27-8, "Perform a fleet-wide  
4 campaign directive to inspect Emery's fleet of DC-8 aircraft

5 for proper hardware, proper installation, orientation, et  
6 cetera at the -- at this installation at the control tab  
7 crank fitting." Once again, we're talking about where the  
8 push rod attaches to the crank fitting.

9 Item six, seven, and eight that you were  
10 referring to, refer to the inboard hinge bolt, which  
11 attaches -- this is the inboard hinge fitting for the

12 control tab. Item six, seven, and eight do not refer to --

13 A I see what you're saying, the push rod link.

14 Q Correct. This was identified previously through  
15 the comments process, received by Emery in response to the  
16 air worthiness factual report, essentially that hey, yes,  
17 this procedure does identify the hardware for this location,  
18 item six, seven and eight, and as pointed out at that time,

19 item six, seven, and eight, once again refer to the inboard  
20 hinge bolt. So therefore, could you now confirm or would  
21 you agree that this procedure, Chapter 27-3206, which is



22     referenced on work card 3502, as the applicable procedure,  
23     nowhere within identifies the proper hardware to be  
24     installed, orientation of that hardware, whether or not that  
25     hardware should be secured, and if so, how, at this time.

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1           A     The card refers you to the applicable manual.  In  
2 this case, this manual is deficient in those items.

3           Q     Thank you.  Isn't it also true that the Douglas  
4 Aircraft Company DC-8 master maintenance manual and

5 illustrated parts catalog also lack this information?

6           A     Do you have a reference?

7           Q     I can produce one here.  Hold on one second.

8 I'll refer to and say it's 7-A, it'll just take me a minute  
9 to find the page -- page number.  Alright, my memory is  
10 partially here, it's been a while ago.  There is a reference  
11 in Exhibit 7-Alpha that I have in the back of my mind.  It

12 does not identify the specific reference, however let me  
13 read the paragraph.  It's found on page 19.

14                 It says, "A review of the DC-8 master maintenance  
15 manual and illustrated parts catalog applicable to Chapter  
16 27 revealed similar findings, i.e., no reference to the  
17 hardware required to install the control tab push rod to the  
18 tab crank fitting.  However, as previously indicated, a

19 review of the DC-8 overhaul manual ..." -- I'll give you one  
20 of my questions here -- "Chapter 27-16-1 did reveal the  
21 hardware required at this location."

22                   So, to answer your question, I do not have the  
23                   reference before me here, but it -- suffice it to say -- has  
24                   been established that the Douglas Company master maintenance  
25                   manual and illustrated parts catalog, at least at the time

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1 of the accident, also was lacking in the fact that it did  
2 not depict this hardware, or describe this hardware.

3 Moving along here --

4 A Can I -- can I ask a question?

5 Q Yes.

6 A If I may? On Exhibit 7-L --

7 Q Yes, sir.

8 A -- page seven, item one, where it listed the tab  
9 assemblies for the elevator, have those been researched to  
10 see if the push rod and attaching hardware come as part of  
11 that assembly?

12 Q I don't recall at this point after two years.

13 A Okay. That's the same with the Douglas master.

14 I'm assuming that it also references an assembly.

15 Q Once again, I don't recall at this time here.

16 A Okay.

17 Q But the bottom line would be that as just  
18 established, neither the work card nor the applicable

19 maintenance manual, Chapter 27-3206 describe the hardware to  
20 be required for this installation. Is that correct?

21 A I don't want to sound evasive, but without

22 looking at what those parts, those assemblies consist of,  
23 I -- I can't answer that they don't. I can only say that  
24 the items listed, in their individual -- the individual  
25 parts don't show the hardware, but I don't know about the

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1 assembly.

2 Q Okay, that's fine. No problem. Why don't we  
3 refer now to -- we'll come back to this now in a second --  
4 why don't we refer to the fleet campaign directive found in

5 Exhibit 7-M. Come at this from a little bit different angle  
6 here. Once again, for the record, this fleet campaign  
7 directive was issued by Emery to perform an inspection of  
8 the pushrod installation -- complete pushrod installation,  
9 so both at the fore and aft end of the pushrod, based on the  
10 best ... findings to date at that time.

11 CHAIRMAN GOGLIA: Mr. Pudwill, will you hold on

12 for one second.

13 MR. PUDWILL: Sure.

14 CHAIRMAN GOGLIA: Since you're going to go on to  
15 the FCD. Would the witness please pull out 17-D, 7-M, I  
16 believe you have in front of you, and 17-E.

17 THE WITNESS: 17-Delta and who?

18 CHAIRMAN GOGLIA: Echo.

19 THE WITNESS: All 17.

20 CHAIRMAN GOGLIA: We'll provide you with one.

21 THE WITNESS: I don't have 17 -- all's I've got

22 is seven.

23 CHAIRMAN GOGLIA: Mr. Pudwill, I planned on  
24 getting into this area in a few minutes, whenever it came  
25 back -- those three documents, so I would like to start -- I

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1 have some questions with them, and then I'll turn it back to  
2 you.

3 MR. PUDWILL: Would you mind going ahead with  
4 that? I need to review this fleet campaign directive,

5 anyway.

6 CHAIRMAN GOGLIA: Okay, thank you. You have 17-D  
7 and E?

8 THE WITNESS: Yes.

9 CHAIRMAN GOGLIA: And 7-M?

10 THE WITNESS: Yes, I have all three.

11 CHAIRMAN GOGLIA: Okay. Would you take 17-D

12 first.

13 THE WITNESS: I have it.

14 CHAIRMAN GOGLIA: Okay. Are these documents  
15 prepared by the engineering department? Are they originated  
16 in the engineering?

17 THE WITNESS: I wasn't there at the time of the  
18 distribution of this, but typically they would be. They

19 would come out of the engineering department.

20 CHAIRMAN GOGLIA: Okay, and they're numbered from  
21 the top right hand side, in this particular case, 7-M -- I



22 mean 17-D is A-27-7, is that correct?

23 THE WITNESS: That's correct.

24 CHAIRMAN GOGLIA: And it was issued when?

25 THE WITNESS: 2/16/01.

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1                   CHAIRMAN GOGLIA:  Okay.  And if you would  
2   continue on the pages two, three, and four.  The following  
3   three pages.  And in the introduction, would you read that?  
4   I'll read it aloud for everybody.

5                   "Due to the possibility of incorrectly installed  
6   parts on the elevator push-pull rod assembly, an inspection  
7   of the rod assembly is called for.  This FCD inspects the  
8   rod ends for proper installation of the bolt, washer, nut,  
9   and cotter pin."

10                  I have a question for you.  Do you know that this  
11   was done?  It says all -- the whole fleet?

12                  THE WITNESS:  Do I know that it was complied with  
13   on the entire fleet?

14                  CHAIRMAN GOGLIA:  Yes.  Yes or no?

15                  THE WITNESS:  Well, I believe -- I wasn't there  
16   at the time.  I believe I saw a list with all the aircraft  
17   complied with, but I can't be certain.

18                  CHAIRMAN GOGLIA:  And do you recall ever seeing

19   what the outcome of that was?

20                  THE WITNESS:  I only saw the document.

21                  CHAIRMAN GOGLIA:  Okay.  Now, if you would take

22 7-M. And again flip to the cover page. And it's A-27-8.  
23 And it's essentially a month later by the date, is that  
24 correct?

25 THE WITNESS: That is correct.

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1                   CHAIRMAN GOGLIA:  And now in this campaign, it's  
2  expanded.

3                   THE WITNESS:  Yes, it is.

4                   CHAIRMAN GOGLIA:  What kind of -- to your mind,

5  as the head of engineering, an engineering person, what  
6  would drive the engineering department or the maintenance  
7  department to expand this inspection?

8                   THE WITNESS:  Sometimes when you -- and I kind of  
9  know the history of the origin of 27-7 -- okay, I was  
10 involved somewhat with the investigation at Tennessee Tech  
11 when we saw some items that we didn't like.  And I'll give

12 you the real world scenario.  There's times when you get a  
13 lot of -- if you publish something, and this has happened to  
14 me countless times, you publish something, the instant it  
15 hits the street, mechanics call from all over pointing out  
16 discrepancies and punctuation, spelling of words,  
17 information missing.  There's lots of reasons why it may be  
18 expanded or reissued to facilitate everybody's questions.

19  And I'm speaking in a general term.  I don't know that  
20  that's what happened here.

21                   CHAIRMAN GOGLIA:  And you don't know why they

22 would include the opposite end of the push-pull rod?

23 THE WITNESS: I have -- I don't know.

24 CHAIRMAN GOGLIA: Okay. And then if you would  
25 look at 17-E. And this one is 27-8, r... and it is a --

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1 one week later, 3/22/01. And now we add a clearance check.  
2 So inside of 30 days, we have a fleet campaign directive  
3 issued, reissued, reissued again, expanded and expanded  
4 twice. I have concerns that things were being found that

5 drove maintenance and engineering departments to expand the  
6 look.

7 THE WITNESS: I don't know that that's the case,  
8 however, in similar situations I can -- as I said, I have  
9 some familiarity with the first original 27-7 -- because of  
10 the seriousness of the nature of the topic, there was a rush  
11 to get this out so that at least people were out there

12 looking at the general area to see if there was a problem.  
13 Thirty days later, there's a reissue that's expanded from  
14 four pages to 11, and I'm assuming this is to -- in my  
15 experience -- this is done in response to feedback from line  
16 mechanics, maintenance control people who look at these and  
17 research them, find other documents or -- possibly finding,  
18 not necessarily problems in the field, but conflicts between

19 the content of the FCD and what they're actually seeing on  
20 the aircraft. And by conflicts I mean that because of the  
21 speed or the urgency to get the initial one out, there's a

22 possibility that it wasn't researched as thoroughly as it  
23 could have been, given -- you know, if it wasn't such a  
24 serious and wanted to get some immediacy out of it.

25 CHAIRMAN GOGLIA: Can I draw your attention back

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1 to 17-D?

2 THE WITNESS: 17-D?

3 CHAIRMAN GOGLIA: Dog. Correct. The first FCD  
4 that was issued on February 17, 1991 -- I mean 2001 -- and

5 on the left hand side of the page, in the second line down,  
6 "Complete the entire fleet no later than February 26th". So  
7 this campaign was done or nearly done before this next one  
8 was issued. But you have no recollection, or no direct  
9 knowledge of the findings?

10 THE WITNESS: As I saw -- I saw the document  
11 briefly. I didn't analyze the document, no.

12 CHAIRMAN GOGLIA: Okay, Mr. Pudwill, are you  
13 ready to continue?

14 MR. PUDWILL: Yes, I am, Mr. Chairman.

15 BY MR. PUDWILL:

16 Q While we're on the subject matter, I am referring  
17 of the three, to Exhibit 17-Echo.

18 A Which version is that?

19 Q That's eight. 27-8, revision one.

20 A Okay.

21 Q One little quick general question. Can you



22 identify the signature in the approved by space on page 1 of  
23 11?

24 A It looks like Edward Jones.

25 Q Can you identify who that would be?

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1           A     At the time, he might have been the director of  
2     quality control or the manager of quality control.

3           Q     Wouldn't this document originate within the  
4     engineering department?

5           A     Origination, yes. An FCD is -- in the Emery  
6     context, an FCD is treated different than say an EO.

7           Q     Wouldn't you have reviewed this document at that  
8     time, after whoever had prepared it?

9           A     As I said, I wasn't there at the time, but I  
10    would assume that it was reviewed by engineering.

11          Q     I'm sorry, I might be missing something here.

12           This was -- oh, essentially can you -- I'll just ask, was  
13    this before or after you left the company?

14          A     After.

15          Q     Okay, thanks. Please refer to page 2 of 11. And  
16    right in the middle of the page, it's materials.

17          A     Yes.

18          Q     It identifies the hardware here. So I'm not

19                asking for you know, those numbers -- I can't expect anybody  
20                to remember that, but essentially would you agree that we  
21                have a bolt, a washer, nut, and cotter pin required at this

22 installation?

23 A Yes.

24 Q Two each. Okay, now I'm referring specifically  
25 to the control tab attachment at this point right now?

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1           A     Are we in the FCD document?

2           Q     Yes, we are.

3           A     Okay.

4           Q     And just for confirmation of that, flip forward

5           to page nine of 11, and it shows a figure, depicting both  
6           the fore and aft ends of this push rod.  And once again, I  
7           recognize that this can be corrective ... check both ends,  
8           but I'm really just trying to confine comments to the  
9           accident location at this point, so the attachment at the  
10          rear of the push rod to the control tab push rod, and would  
11          you agree that you have a bolt, nut, washer and cotter pin  
  
12          depicted in the upper right hand corner, which would be at  
13          the tab crank fitting?

14          A     Beginning with item 24, is that what that arrow -  
15          - is that the area we're talking about?

16          Q     Yes, item 24.

17          A     Yes, it appears to be a bolt, washer, nut and a  
18          cotter pin.

19          Q     Okay, thank you.  Now, please refer back to  
20          Exhibit 7-L, keep that Exhibit 17-Echo available.  Compare  
21          that figure, if you will, to figure 1001 on page six of the

22 Exhibit, which is page 1001 of maintenance manual Chapter  
23 27-3206. Do you see now that item six, seven, and eight,  
24 which refer once again to the inboard hinge bolt are in a  
25 different location?

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1           A     Yes, I agreed before.

2           Q     Okay, and therefore now, can we make the  
3     assertion that this maintenance manual reference, which is  
4     applicable for the accident aircraft, and once again that

5     TTS was expected to utilize during the performance of work  
6     card 3502 found in Exhibit 7-K, would essentially be  
7     inadequate in that it did not define the hardware at this  
8     location?

9           A     This particular maintenance manual does not  
10    depict the hardware.

11          Q     Alright, thank you. Next question was going to

12    be identify source of technical data available to Emery  
13    personnel and their contract providers that clearly depicts  
14    this hardware by part number, to be installed when  
15    connecting the control tab and push rod --

16          A     Which document are we on right now?

17          Q     I was just going off my notes here.

18          A     I'm sorry.

19          Q     This -- if you paid attention, you heard ... we  
20    already answered this when we referred back to Exhibit 7-  
21    Alpha, but essentially, the question was if you could

22 identify a source of technical data that would have been  
23 available to TTS at the time, and of course the answer has  
24 already been revealed, the ... factual report and the answer  
25 that I was looking for was the overhaul manual, chapter 27-

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1 16-1, figure two. And once again, that's Exhibit 7-Alpha,  
2 Section 8.2, page 16.

3 To my knowledge, that's the only location that  
4 the Safety Board was able to identify the hardware for this

5 installation other than for the drawings provided by  
6 Douglas, which I'm assuming TTS did not have available.

7 A On those, I'll take your word, but again, I have  
8 to state without knowing what parts consist of -- what's  
9 consisting in the parts of an assembly that's listed in the  
10 IPC, I'm -- you know, that -- there's a spot there that may  
11 be -- there may be something in the assembly listing on the

12 IPC that includes these parts.

13 Q Okay, but --

14 A By far what I'm saying is there's exploded views,  
15 and then there's things that come as a set, such as, you  
16 know, black boxes and things of that nature. The box itself  
17 has a part number, which is an assembled bunch of  
18 transistors and what not. The IPC wouldn't necessarily list

19 the transistors. The overhaul manual might, but the IPC  
20 would not. So again, I'm interjecting, and it's only a  
21 question that I have looking at what you've provided, that



22 the assemblies would have to be reviewed to see what they  
23 contain.

24 Q Wouldn't the illustrated parts catalog that's  
25 found on pages 1001 and 1002 of maintenance manual Chapter

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1 27-3206 be the applicable illustrated parts catalog for this  
2 installation, and therefore shouldn't this procedure, this  
3 illustrated parts catalog, include this information?

4 A Include what? I'm sorry, I didn't hear that.

5 Q Identification of the hardware to be installed.

6 A Once again, there's many components on the  
7 aircraft, Kevin, that are made up of multiple parts. The  
8 higher assembly gets the part number.

9 Q Okay, in the case of -- you know, a lot of these  
10 mechanical components, all kinds of components, there's --  
11 those are assemblies of multiple parts, sometimes thousands

12 of parts, with the parent part number is what you get out of  
13 the IPC. The components that comprise that part number are  
14 only listed in the overhaul manual for that particular part,  
15 and I'm only caution because I've been working with these  
16 aircraft for many years, and sometimes these assemblies --  
17 sometimes are where the supposed or the apparent missing  
18 parts exist in the assembly itself.

19 MR. PUDWILL: Mr. Chairman, do you mind if I take  
20 a minute to confer with my colleagues here?

21 CHAIRMAN GOGLIA: No, in fact I have a couple

22 questions that I can ask right now.

23 MR. PUDWILL: I appreciate that, thank you.

24 CHAIRMAN GOGLIA: Mr. Robbins, when did you leave

25 Emery? What was the date?

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1 THE WITNESS: June -- the end of June 2000.

2 CHAIRMAN GOGLIA: Okay, and where were you in  
3 1999 in the organization?

4 THE WITNESS: I was director of engineering. The  
5 spring of '99, April, May, something like that.

6 CHAIRMAN GOGLIA: And what were you doing before  
7 that?

8 THE WITNESS: Manager of maintenance training.

9 CHAIRMAN GOGLIA: And about how long?

10 THE WITNESS: Six years.

11 CHAIRMAN GOGLIA: There is a number of concerns

12 been voiced by the pilot group about problems with Emery and  
13 concerns -- concerns they have about Emery's maintenance in  
14 that period of time. Have you heard those?

15 THE WITNESS: I've seen some report in the  
16 newspaper, in the local paper.

17 CHAIRMAN GOGLIA: Okay, and did you, as part of  
18 your normal duties and especially in the spring of '99, did

19 you ever have access to somebody from the flight ops side  
20 bring to you any of the debriefs that the Captain fills out?

21 THE WITNESS: Yes, I saw a couple, a few.

22                   CHAIRMAN GOGLIA:  And did any of those raise  
23                   concerns to you about the allegations or concerns that the  
24                   flight crews were having about the performance of the  
25                   maintenance department?

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1                   THE WITNESS:  Yes, in fact, I can recall taking  
2                   an initiative and doing some research by myself to see if  
3                   they were founded, and I'll be very honest with you, in each  
4                   case that I tried to track down evidence of somebody --

5                   whatever the allegation was, I can't recall off the top of  
6                   my head -- but in each case, I could not find substantiation  
7                   to support the claim.

8                   In a lot of cases what I saw was disagreements  
9                   over -- in some cases, disagreements over the use of the  
10                  MEL.  There's a phrase in the MEL that says something to the  
11                  effect that you can defer it if the time and material

12                 doesn't -- it's going to interfere with the schedule or  
13                 something along those lines, I can't be sure.  That's a  
14                 point of contention.  I mean my -- the mechanic in me says I  
15                 want to fix the airplane, but sometimes I just literally  
16                 can't because I don't have the parts available, possibly the  
17                 tooling, or the time to get the airplane out to make the  
18                 scheduled departure.

19                 The flight ops people, obviously want to fly the  
20                 aircraft.  That's their job.  That's what they do.  There's  
21                 almost an inherent conflict whenever you have an aircraft

22 that's got a component broken. And those sometimes depend  
23 on people's -- the tempers get a little short when they've  
24 been up for -- away from home for a few days. Mechanics  
25 don't always have the most gifted way of explaining things

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1 to air crew. There's lots of reasons why there may be a rub  
2 in the cockpit which manifests itself into an alleged report  
3 of something else. And as I said, in the instances that I  
4 took the initiative and tracked these things down, when it

5 got down to the end game, there was -- there was really  
6 nothing there but a disagreement that maybe got out of hand  
7 a little bit.

8 I'm not saying that there's never a chance of any  
9 of this stuff happening. I'm saying in my personal  
10 experience, that's what I came to.

11 CHAIRMAN GOGLIA: And I am familiar with the

12 phraseology in the MEL that you're talking about that allows  
13 that difference of opinion to exist, and in the course of  
14 your duties, did you ever feel any obligation that company  
15 policy should be clear in that area and try to initiate some  
16 action?

17 THE WITNESS: I think it's very clear, the  
18 verbiage. It's the application. You know, the line gets

19 crossed when the air crew wants to leave -- or I should say  
20 the air crew wants everything to work on the airplane, and I  
21 don't blame them. You know, everybody would like to fly an



22 aircraft with 100 percent of the components working.  
23 Maintenance would like to provide that in almost all cases.  
24 It's when those two oppose each other, that's where the  
25 conflict comes.

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1                   Sometimes there's an appearance -- it could be if  
2 I'm stuck in Phoenix and I need a bleeder valve or something  
3 along those lines, some of these places are difficult to get  
4 parts to in a hurry. If the part doesn't arrive at the  
  
5 aircraft in time for the maintenance to be performed and for  
6 it to be properly tested, you know, what do you do? And in  
7 some cases, incorrect troubleshooting or a system that's  
  
8 troubleshoot gives you indications that it could be one of  
9 several items that are broke. You order what you think it  
10 is, based on your experience, and it winds up not being that  
11 part. Now your block time -- you ordered the part, and the  
  
12 airplane's still broke.

13                   So I mean there's many different reasons to have  
14 a conflict in the cockpit. I've been involved in several.  
  
15 It's just the nature of the business, unfortunately, I think  
16 in some cases.

17                   CHAIRMAN GOGLIA: I may have you beat in numbers  
18 with those conflicts.

19                   THE WITNESS: I'm being conservative.

20                   CHAIRMAN GOGLIA: In the course of your job as  
21 director of engineering, did you ever get concerned over the

22 use of repeat MELs?

23 THE WITNESS: There's been some concern raised  
24 about three particular systems that I know of -- four.  
25 Autopilot, pressurization, weather radar, and fuel. Those

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1 have been heavy hitters for a long time. I'll address the  
2 first three - autopilot, weather radar and pressurization in  
3 one swat. The airplane is a dynamic machine. It flies in  
4 the air and that's where the pilots want everything to

5 operate. Weather radar picks up storm cells, supposed to.  
6 Pressurization is supposed to keep the cabin pressurized at  
7 7-8 psi, whatever the particular number is. Autopilot is  
8 supposed to maintain that airplane in flight in a steady  
9 state, or a stabilized flight.

10 When the airplane lands I can no longer produce a  
11 storm cloud to see if the weather radar's working. I can't

12 pressurize the airplane to those pressures, and I certainly  
13 can't get the autopilot to hold the airplane stable enough  
14 for me to check it out. In the case of the DC-8 -- a lot of  
15 the newer aircraft have built-in tests, buttons on the boxes  
16 that are a 30 percent chance that whatever it says is bad  
17 might be bad. The DC-8 doesn't have that. It's left up to  
18 troubleshooting, intuition, and in some cases, best guess.

19 There's no way around it. It's an older aircraft and it is  
20 a very difficult and sometimes cantankerous aircraft.

21 But an airplane that's got problems in a dynamic

22 situation and you place it in the hands of the mechanics in  
23 a static situation, some of those things are difficult to  
24 find. In the case of the fuel --

25 CHAIRMAN GOGLIA: Excuse me. Nobody ever said

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1 our job was going to be easy.

2 THE WITNESS: Well, I got in it because I liked  
3 airplanes, not because they love me.  
4 In the case of the fuel, there's almost a

5 standard joke in the industry -- and I'm not talking Emery,  
6 I'm speaking DC-8, worldwide. The only time a DC-8 doesn't  
7 leak is when it doesn't have any fuel. That's -- you know,  
8 it's not that bad, but it's -- the aircraft was not built  
9 with integral tanks. There's years worth of work in those  
10 tanks. It's very difficult aircraft to keep moving  
11 economically. It's one of the reasons why it's probably  
12 going to be phased out.

13 Speaking from my own personal experience, first  
14 of all, I'm very proud of the fact that I worked at Emery  
15 even though there seems to be a -- this hearing is not a  
16 really good forum for me to say that, but i know that the  
17 people there did a good job and they -- almost every case,  
18 did as good a job as they could. And I think it was a very  
19 concentrated effort to do the right thing. I could just go  
20 on forever, I know you've got other witnesses, but -- any  
21 company -- I've been attached to several airlines. Any

22     airline -- any one, any repair facility put under the  
23     scrutiny and the magnifying glass that Emery has gone  
24     through in the past two years, you're going to find warts.  
25     Doesn't make it a bad --

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1                   CHAIRMAN GOGLIA: I think we found cancer.

2                   THE WITNESS: Well, you might have. You may  
3 have, but believe me, and you've got enough experience you  
4 know there are problems in the industry and I can't deny

5 that. Like I said, I think that for the most part, from my  
6 experience with Emery, they tried very hard to do the right  
7 thing.

8                   CHAIRMAN GOGLIA: Okay, Mr. Pudwill, are you  
9 ready?

10                   MR. PUDWILL: Yes, sir, I am.  
11                   BY MR. PUDWILL:

12                   Q     I'll try to briefly refer back to Exhibit 7-L.  
13 And specifically, page seven, which is the parts listing for  
14 the illustrated parts catalog. And I'll just state for the  
15 record, nowhere in here does this parts catalog, which is  
16 titled "Elevator control tab removal and installation"  
17 identify the hardware required at this location. No  
18 question there.

19                   A     Oh.

20                   Q     Can you explain why the engineering department  
21 failed to revise the maintenance instructions related to



22     this work card, work card 3502 in Exhibit 7-K to include  
23     supplemental instructions or information regarding the  
24     hardware utilized?

25             A     No, I can't.

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1           Q     Thank you. Please refer once again to Chapter  
2     27-3206, Exhibit 7-L, page 203, and note the line near the  
3     bottom of the page just immediately before Section E, which  
4     states, "Inspector. Check control tab installation security  
  
5     and safeties." Could you provide your own interpretation of  
6     this inspection task since no further details are provided?

7           A     As I stated about a castellated (ph) nut, the  
8     security piece for that is a cotter pin, and in this context  
9     obviously the hardware, as you've indicated, is deficient on  
10    the drawings provided in this Exhibit.

11          Q     Excuse me, drop back from the lacking hardware at  
  
12    this point, just please comment on this task itself, which  
13    states "Inspector check the tab installation for security  
14    and safeties." What does that mean?

15          A     That means to check for the hardware, that it's  
16    installed, and that the securities -- the safeties part of  
17    it is the safety wires to be applied, the fact that it is  
18    applied correctly, and in the case, like I said, of a

19    castellated (ph) nut, that a cotter pin is installed in that  
20    castellated (ph) nut through the bolt.

21          Q     Okay, so to summarize then, if you would refer to

22 figure on page six again, in looking at this installation,  
23 obviously you would attach or inspected if the tab hinge  
24 eyebolts, for which there are three, the inboard hinge  
25 bolts, which is at the base of the crank fitting, and the

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1 push rod attachments at both ends of the push rod for the  
2 control tab during this step?

3 A I hate to do this, but could you repeat -- just  
4 the contents of the question?

5 Q Essentially I'm asking you to summarize what --  
6 you said generically what this inspection step -- the types  
7 of things you would look for. I guess I'm now asking in  
8 what areas would you look for these types of installation,  
9 security and safeties, if you were doing this inspection  
10 today? Please refer to page six, if necessary.

11 A If you install both ends of the push rod --

12 basically anywhere there's an attachment that you've made in  
13 the process of installing this tab.

14 Q Okay, thank you. As the director of engineering,  
15 would you be concerned that inspection personnel may or may  
16 not be familiar with this installation? Once again, we've  
17 already established that this Chapter here does not identify  
18 the hardware, so would you be concerned that maintenance

19 personnel not as familiar with the system might not realize  
20 that the installation even requires a castellated (ph) nut?  
21 In other words, possibly installed and --

22           A     I am concerned now that I see that the card does  
23 not show hardware.

24           Q     Go ahead, thank you. Obviously, not knowing that  
25 you had left in June of 2000 kind of limits the scope, but

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1 since you are still involved with Emery and directly  
2 pertaining to this accident investigation, can you explain  
3 why Emery or Emery's engineering department has never issued  
4 any revisions to these maintenance instructions? Either on  
  
5 the applicable work card or Chapter 27-3206?

6 A To my knowledge, this item has never been brought  
7 up to engineering or Emery's attention for that matter, that  
8 there are missing components on these figures.

9 Q Let's drop back. I won't refer to the figure,  
10 but just visualize in your mind the various fleet campaign  
11 directives. Those three campaign directives were self-

12 contained in that they didn't refer to any other figures. I  
13 mean there was an IPC reference on the first page, granted,  
14 however, there are figures attached to those fleet campaign  
15 directives that clearly depict the maintenance task at hand,  
16 the instruction for this fleet campaign directive, and  
17 clearly identify the hardware.

18 A That's correct.

19 Q If -- if this hardware was identified elsewhere,  
20 in the procedure for the installation or otherwise, wouldn't  
21 you expect a reference on the fleet campaign directive to

22     verify the installation in accordance with whatever that  
23     manual might be?

24             A     In the development of the FCD, it was already  
25     known that the only place that the correct or the preferred

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1 direction of the bolt installation was in the overhaul  
2 manual. The pictures, I believe, reflect the overhaul  
3 manual, if I'm not mistaken, and there would be no reason  
4 for anyone to go to look at these first because it was

5 already clear that they did not show the preferred direction  
6 of the installation.

7 Q I'll accept that, but it also could be a  
8 possibility, wouldn't you agree, that maybe somebody in the  
9 engineering department -- once again, this is after you had  
10 already left -- had attempted to source this information via  
11 the maintenance manual, was unable to obtain it information

12 or identify that information, and therefore utilized the  
13 overhaul manual or otherwise?

14 A If the engineers got a hold of it, much like  
15 yourself, it would not get through, if that's -- if they had  
16 been in the IPC and it did not show those parts, they would  
17 not have let it pass without some sort of notification that  
18 the parts were not listed.

19 Q I want to jump off script here, since it appears  
20 that Emery until this time has been unaware that the  
21 applicable maintenance manual instructions that TTS, once



22     again, would have utilized during the installation of this  
23     control tab, were inadequate in the fact that they did not  
24     identify this hardware, and I guess simply state or ask  
25     Emery, yourself, to confirm whether or not -- when you were

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1 first made aware that this bolt was missing, and after that  
2 point in time, whether or not or why not, that you did not  
3 go back into the applicable procedures to try to identify  
4 when this bolt might have been left out or not safetied.

5 A Is that multiple questions or am I --

6 Q I guess it is and I apologize for that.

7 Essentially, can you identify when Emery became first aware  
8 of that -- that we had a missing bolt, or that a missing  
9 bolt might have played a factor in this accident?

10 A In or around February, 2001.

11 Q Okay, thank you. Knowing what you know now,

12 regarding these procedures and the lacking information, can  
13 you explain how this particular reference 27-3206, obviously  
14 as written, meets Federal Aviation Regulations part 25.1529,  
15 which once again, Exhibit 7-Tango, pages two to three,  
16 specifically instructions for continued airworthiness,  
17 subpart B, maintenance instructions, item three. And I'll  
18 read the line item: "Information describing the order and

19 method of removing and replacing the products and parts with  
20 any necessary precautions to be taken."

21 A You're asking does it meet that ?

22           Q     How does this manual, as written, meet that FAR  
23 requirement?

24           A     I didn't produce the manual, I --

25           Q     Can you identify -- that's fine, thank you. Can

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1 you explain, knowing now what you know, that -- how the  
2 maintenance instructions, included in this Chapter meet the  
3 requirements of FAR Part 121.367, same Exhibit, subpart C,  
4 which once again, I'll read, states the following:

5 "Each certificate holder shall have an inspection  
6 program and a program covering other maintenance, preventive  
7 maintenance and alterations that insures that each aircraft  
8 released to service is air worthy and has been properly  
9 maintained for operation under this Part."

10 A May I ask, you want me to say whether or not it  
11 complies with it?

12 Q Yes. Can you explain how this maintenance manual  
13 referenced as it currently exists, meets that FAR  
14 requirement?

15 A No, I cannot.

16 Q Alright, thank you. I'd like to leave the D-  
17 check area now and jump ahead in time, a short period of  
18 time, a week out of D-check, in reference to the flight crew

19 discrepancy and the troubleshooting that Emery performed on  
20 November 25, 1999. Give me just one moment, please.

21 Please refer to Exhibit 7-0, which is the

22 maintenance log page, number 8086-11 dated November 25,  
23 1999. Mr. Robbins, are you familiar with this writeup?

24 A Yes, I am.

25 Q Alright. Are you also familiar with the evidence

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1 collected to date and documented within the maintenance  
2 group chairman's factual report which is Exhibit 11-Alpha?  
3 Specifically, pages 10 through 11 pertaining to this event?  
4 It essentially describes, from the maintenance group

5 chairman's perspective, the events that transpired during  
6 this troubleshooting?

7 A I don't have that Exhibit. Which one was it?

8 11?

9 Q 11-Alpha. Pages 10 through 11. I think we can  
10 jump ahead without it here. Since you are rather familiar  
11 with this. Referring back to Exhibit 7-0, for the record,

12 would you please read the discrepancy as entered by the  
13 flight crew?

14 A "Elevator required more back pressure than normal  
15 to flare the aircraft. Also, during elevator check" -- I  
16 don't know what that word is -- "CG to 25.4 percent 2F, 23.3  
17 percent."

18 Q Okay, thank you. Could you also please read the

19 maintenance entry in the corrective action block on the  
20 right hand side?

21 A "Found left and right hand elevator dampers

22 reversed. Moved left to right side, right to left side.

23 Ops check good. No defects noted." And there's ...

24 Q Alright, thank you. Can you describe how you

25 first became aware of this discrepancy? In other words, do

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1 you recall whether or not engineering was contacted to  
2 assist in troubleshooting?

3 A No, we were not, to my knowledge.

4 Q Do you have any first hand knowledge of the

5 actual troubleshooting that was performed on that date?

6 A Through reading the documents and talking to the  
7 individuals involved, yes.

8 Q Any first hand knowledge? You were not present  
9 during this troubleshooting?

10 A No.

11 Q Alright, thank you. Can you briefly describe any

12 relevant information you might have learned since that time  
13 that would help clarify the actual configuration of the  
14 elevator dampers and their associated linkages prior to any  
15 corrective action by any Emery maintenance personnel?

16 A Can you state that again?

17 Q Sure. Could you briefly describe any information  
18 you might have obtained since then, that would help you

19 clarify for us here today, the actual installation,  
20 including the associated linkages to the dampers -- either  
21 side, prior to any corrective action by Emery? In other



22 words, prior to reversing the dampers?

23 A Information that was available to the mechanics  
24 prior to --

25 Q No, I'm asking if you are aware of -- just asking

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1 you to describe any information that you learned since then  
2 regarding what transpired that night. Do you know what  
3 the configuration was as the aircraft came in? I'm trying  
4 to determine what the configuration of the damper assemblies  
  
5 were as the aircraft departed TTS.

6 A As I understand it, the dampers being reversed,  
7 left to right, right to left, placed the link arm and crank  
8 arm toward the top part of the elevator. In a normal  
9 configuration, the link arm and the crank arm would be  
10 located towards the lower part of the elevator.

11 Q Okay. Would the -- would Exhibit 7-Q be

12 beneficial to you --

13 A Is that the drawings?

14 Q Yes. What I think you're referring to is  
15 probably Exhibit 7-Q, drawings shown on page five and six.  
16 Can you confirm whether or not this is what you're trying to  
17 describe?

18 A Yes, this is the reverse position.

19 Q And just for the record, this is just a drawing  
20 produced by the Safety Board, based upon the actual drawings  
21 provided by Douglas. These drawings were put together, they

22 are to scale and they omit unnecessary detail, but  
23 essentially page five depicts a DC-8 71 Foxtrot, with the  
24 elevator deflected full throttle, 27 degrees trailing edge  
25 up. The damper is reversed, and the linkage assembly that

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1 connects the horizontal stabilizer to the damper, i.e., a  
2 link and a crank arm, are essentially mirror imaged to what  
3 they should have been. Is that correct?

4 A Roughly.

5 Q Okay, and can you confirm that sheets one and two  
6 of that same Exhibit would indeed identify the correct  
7 installation for comparison?

8 A Yes.

9 Q Alright, thank you. Could you please identify  
10 the troubleshooting performed by maintenance that you are  
11 aware of that night?

12 A The troubleshooting performed by maintenance  
13 consisted of walking to the back of the aircraft, looking up  
14 and seeing that the link arms were not exposed on the lower  
15 side of the elevator. And they had run into this once  
16 before, twice before in the past, and it became apparent  
17 that the elevator dampers were reversed.

18 Q Do you feel that would be an easy task to discern

19 these linkages from a distance of -- I'm guessing here, I  
20 might be wrong -- 15 feet below at night?

21 A Yes.

22           Q     Okay, thank you.  In your opinion, what types of  
23 problems could possibly cause the elevators to require more  
24 back pressure than normal to flare the aircraft?

25           A     Air speed, weight, use of the horizontal

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1 stabilizer trim on approach, flap settings, something stuck  
2 in a cable, bearings that were worn. There's a litany of  
3 things that could be --

4 Q Okay, --

5 A -- particularly with the statement -- if I can  
6 quote -- "requires more back pressure than normal" -- that's  
7 a very arbitrary description.

8 Q Fairly subjective?

9 A Fairly subjective.

10 Q Okay, would you consider elevator icing to be a  
11 possibility? Possibly an obstruction between the leading

12 edge and the horizontal stabilizer?

13 A I'm not -- you could speculate that that -- I  
14 mean that could, in certain cases, possibly -- you know,  
15 it's just too hard to tell.

16 Q Okay. You mentioned one of these, but would you  
17 consider excessive friction, binding, or obstructions in the  
18 travel of the cables or control tab linkages to be a

19 possibility?

20 A That's a possibility.

21 Q What about improper cable tension? Or a mismatch

22 between the left and right control tabs or gear tabs?

23 A I would -- based upon the writeup, I would rule  
24 out rigging issues, strictly because rigging doesn't come in  
25 and out of rig. Once it's rigged, it's done. In this case,

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1 the aircraft had taken several flights -- I believe it was  
2 eight days or nine days worth of flights with no reported  
3 problems. I would, based on my experience, not go to  
4 rigging first.

5 Q Is there any way to know that you might not have  
6 had excessive force applied to the cables for whatever  
7 reason, during flight or on the ground -- maintenance  
8 personnel or flight crew that might not have stretched the  
9 cables or something?

10 A In my experience with the DC-8, basically I go  
11 back to my statement, once it's in rig, it's in rig, and

12 they don't come out unless something happens or somebody  
13 does something to it.

14 Q Well, once again, it hasn't been -- I don't think  
15 anybody here can completely identify the exact configuration  
16 of this aircraft when it left TTS. I mean I think generally  
17 everybody has a good idea, I'm only really concerned with  
18 flight controls, specifically, the elevators, but still to

19 date there is no clear proof one way or another of the  
20 configuration of the dampers.

21 A I think the writeup and the subsequent signoff is



22 a very clear indication --

23 Q But as you indicated, you're not absolutely  
24 confident that the dampers were installed as such.

25 A I am absolutely confident that the dampers were

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1 reversed.

2 Q But what about the linkages?

3 A The linkages necessarily had to be -- would have  
4 to be reversed, otherwise you'd have restricted areas as you

5 pointed out on your drawings three and four.

6 Q The point I was trying to make is, and I don't  
7 disagree with that comment there, is that an aircraft that  
8 has just undergone heavy maintenance, i.e., a D-check, over  
9 a period of time of several months, has had a lot of  
10 different work cards and procedures applied throughout the  
11 check, just as an example, or a comparison, in the case of

12 the dampers. I'm not doubting that the dampers were  
13 reversed, but I'm just saying that's one anomaly coming out  
14 of a D-check. There could be other anomalies, wouldn't you  
15 agree? Such as mismatched control tabs, gear tabs?

16 A Yes.

17 Q What about checking the control tab torque tube  
18 bearings inside the elevator inboard ... that are reportedly

19 susceptible to binding in rough operation? Would you  
20 consider that a possibility?

21 A In this scenario that I described, and one in

22     which I know the mechanics have already given a statement to  
23     what they had actually done, the mechanic that finds a  
24     fairly subjective writeup, in this case, more pressure than  
25     normal, it's not a real descriptive analysis of what the

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1 condition was. If I was to walk back there and find  
2 something very obvious and quite evidently attached to the  
3 surface that the pilot is giving me some indication that he  
4 felt something different, I would swap those dampers, do  
  
5 exactly as the mechanics did, and let the aircraft fly  
6 again, knowing that the aircraft had flown for some period  
7 of time -- a short period of time -- regardless of -- I  
  
8 wouldn't stop - these are line mechanics. They are not out  
9 there to analyze things to death. They find something, they  
10 fix it, and they move on. And in this case, that's what  
11 they did. They're not out there looking for continual  
  
12 problems. I know that they actuated the control column  
13 several times and didn't feel any stiffness, and -- I mean I  
14 would not -- I would not expect any line mechanic to go any  
15 further once they found these dampers, based upon knowledge  
16 at the time.  
17 Q I'm sorry, I don't mean to cut you off, but we  
18 will get there. Really all I was asking was trying to  
  
19 establish areas that you feel, as a licensed A&P and  
20 familiar with the DC-8 aircraft, and certainly the flight  
21 controllers that possibly could have caused such a writeup,

22 and once again, don't you think a restriction in bearings,  
23 obstructions, or the other things that we've listed could  
24 possibly have caused this type of writeup?

25 A Yes, that's possible.

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1           Q     Alright, thank you.  Now, you had mentioned a  
2     moment ago about troubleshooting steps that or expectations  
3     that you would have, as far as maintenance as far as what  
4     they would look at, et cetera, and I believe the comment  
  
5     essentially was that you wouldn't expect maintenance  
6     personnel to dissect the installation, if you will, but in  
7     identifying -- let me ask this, don't you think it is a  
8     necessary task to try to at least attempt to identify  
9     possible causes for a known discrepancy before you can ever  
10    hope to effectively correct that?  And once again, let's  
11    assume you have no direct troubleshooting procedures in  
  
12   hand.

13           A     And the mechanics did that.  I mean the very  
14    first step you should do -- one of the very first steps is  
15    to go take a look at the area.  Is there anything obvious?  
16    You know, could be anything -- a piece of FOD stuck in the  
17    control surface.  The very first thing I would do, after I  
18    checked the control column to see if I could physically tell  
  
19    if there was a difference, I would inspect the control  
20    surfaces, and upon that inspection is when they found the  
21    dampers.

22           Q     Okay, that's fine.  During your previous  
23     testimony you indicated you had several years experience as  
24     a manager of maintenance training at Emery.  Therefore,  
25     could you identify a DC-8 Chapter 27 maintenance manual

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1 reference with troubleshooting guidance related to the  
2 elevators and applicable to this aircraft?

3 A You're asking me if I would sit in front of the  
4 tapes could I find one?

5 Q Can you identify a maintenance manual chapter  
6 that would be effective for the accident aircraft that would  
7 provide troubleshooting instructions to maintenance  
8 personnel, that you, in the engineering department, would  
9 expect maintenance personnel to refer to during such  
10 troubleshooting?

11 A Chapter 27.

12 Q Alright. In your opinion, does maintenance  
13 manual chapter 27-00-37, which is found in Exhibit 7-R --  
14 take a few moments to locate that --

15 A Okay.

16 Q In your opinion, does this maintenance manual  
17 reference provide guidance that could have been utilized by  
18 maintenance personnel during the troubleshooting of this

19 flight crew discrepancy?

20 A Could have been.

21 Q Okay, thank you. Would you not also agree that



22 the troubleshooting procedures identified in this chapter,  
23 i.e., parts one through three -- there's only three parts  
24 within this reference, for the audience, referring to pages  
25 one and two -- provide a thorough check of the elevator

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1 flight control system?

2 A I don't know if it's a thorough check. It's a  
3 check.

4 Q Please take a moment to --

5 A I mean I would have to have some other documents  
6 to reference that's a specific control check to see if this  
7 is a thorough one.

8 Q Well, in your opinion -- and please, if  
9 necessary, take a minute or two, review through parts one,  
10 two and three, to, in your own mind, identify the scope of  
11 the areas that are covered here in context to those problem

12 areas that you identified previously and therefore, in your  
13 opinion, do you think this would do a pretty good job in  
14 troubleshooting the elevator system.

15 A Okay. Yes, I'd say it's a fair troubleshooting  
16 process.

17 Q Okay, thank you. To your knowledge, and based  
18 upon your previous experience as the manager of maintenance

19 training, were maintenance personnel instructed to utilize  
20 this maintenance manual reference when troubleshooting?

21 Chapter 27 flight controls?

22 A Specifically?

23 Q Sure.

24 A I don't think there was any words --

25 Q I mean was maintenance personnel made aware of

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1 the fact that there was troubleshooting procedures, or that  
2 troubleshooting procedures did exist in the various  
3 maintenance manuals chapter 27?

4 A Yes.

5 Q Okay. If Emery maintenance personnel did utilize  
6 this chapter to troubleshoot during this discrepancy, isn't  
7 it possible that they performed part two, step two, i.e.,  
8 checks of the control tab push rods for adequate clearance?

9 A If they used this, they would be using this.

10 Q Can you think of any reason why maintenance  
11 personnel might not have utilized the troubleshooting  
12 guidance provided in this chapter?

13 A Yes, I can.

14 Q Could you expound upon that?

15 A Yes, they found the dampers reversed.

16 Q Alright, thank you. Do you find any reference in  
17 27-00-37 regarding the elevator dampers?

18 A No.

19 Q I realize that you already indicated or testified  
20 that essentially that night, maintenance personnel -- this  
21 is obviously word of mouth --

22           A     It's not word of mouth, it's in the records.

23           Q     But essentially from your perspective, you were  
24 not there first hand, so from my perspective, your testimony  
25 is via word of mouth. Talking to the maintenance personnel

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1 there, it doesn't really matter, but essentially what you  
2 stated prior is that via walk around, linkages were noted  
3 abnormal on the elevator dampers.

4 A Not via walkaround. During a mechanic --

5 Q I'm talking maintenance personnel, I'm not  
6 talking flight crew.

7 A Okay.

8 Q Do you think that it's odd that maintenance  
9 personnel on duty that night, and based on the knowledge  
10 that the Board has, there's at least four individuals  
11 troubleshooting this flight crew discrepancy, that they  
12 wouldn't have referred to the maintenance manual and  
13 wouldn't have checked some of these things identified in the  
14 maintenance manual reference?

15 A Do I find it odd?

16 Q Yes.

17 A Not in the least.

18 Q Could you explain what prompted this

19 maintenance -- excuse me. Are you familiar with the TTS  
20 maintenance inspection where it related to this installation  
21 of the elevator dampers that's dated November 30, 1999.

22 Please refer to Exhibit 7-P, or 7-Papa, page four if

23      necessary.

24           A      I have it.

25           Q      Okay.  Could you explain what prompted this

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1 maintenance inspection remark?

2 A This particular aircraft, these particular  
3 dampers.

4 Q Okay. I want to refer now back to Exhibit 7-Q,

5 once again, the damper drawings for the installation. Could  
6 you refer to pages one and two of the Exhibit and just in  
7 your own words, describe the approximate rotation of the  
8 damper rotor, i.e., the crank arm on the damper, throughout  
9 the full range of the elevator travel when the dampers are  
10 configured normally?

11 A It appears to be about 120 degrees, maybe a  
12 little more.

13 Q My estimate would be closer to 170 degrees. I  
14 know it's pretty hard to tell on these drawings since  
15 they're running off scale here, but that's fine. Could you  
16 refer to pages five and six of the Exhibit? And describe  
17 the approximate rotation of the damper rotor throughout the  
18 full range of the elevator travel when, as you had indicated

19 previously, the dampers are reversed and are hooked up to  
20 accommodate this reversal?

21 A It appears to be about a half an inch of travel.



22 Q Probably five, ten degrees?

23 A That may be close.

24 Q Alright, thank you. Based upon this information,  
25 would you expect the elevator dampers to offer more or less

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1 resistance to elevator movement when the dampers are  
2 reversed as described above?

3 A Less.

4 Q Alright, thank you. In fact, probably much less.

5 Would you be concerned about an aircraft in service if its  
6 elevator dampers reversed as depicted within Exhibit 7-Q,  
7 pages five and six, i.e., reverse dampers?

8 A From my understanding, in some cases, these  
9 dampers are removed from the aircraft altogether. The  
10 safety of flight concern -- I'd be concerned because they're  
11 not correct.

12 Q Isn't -- aren't you actually referring to the  
13 outboard damper installations on the DC-8 elevator which  
14 have been removed or deactivated, not the inboard?

15 A I may be. I mean it would concern me. I would  
16 be concerned that these would be installed incorrectly. Any  
17 part incorrectly installed.

18 Q And why would you be concerned?

19 A Because it's not correct.

20 Q Beyond that? >From an engineering standpoint,  
21 from a licensed A&P standpoint?

22           A     You're asking me to evaluate this part in this  
23 configuration, and I can assure you that the mechanics did  
24 not analyze, much like you did, in a CAD program and  
25 animated to find out what the effect would be of a reversed

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1 damper on the overall system. They found something  
2 incorrectly installed and fixed it, and that's basically  
3 what I would have done based upon my concern that a part was  
4 incorrect.

5 CHAIRMAN GOGLIA: Mr. Pudwill, hold on. Now, if  
6 I agree with what you just said, how do they assure  
7 themselves that they corrected the deficiency as noted?

8 THE WITNESS: If they went to the cockpit, pulled  
9 the control column back and forth, didn't feel anything;  
10 went outside, gave a general inspection, saw the dampers  
11 were reversed; reversed those dampers back to where they're  
  
12 properly aligned or proper positions; go back up and do  
13 another check on the control column. The only option at  
14 that point is to let the aircraft fly again. There's no  
15 safety of flight item.

16 CHAIRMAN GOGLIA: Wait a minute. The only  
17 option.

18 THE WITNESS: Well, I shouldn't say the only

19 option, but an option is to --

20 CHAIRMAN GOGLIA: Man oh man, I've got some --

21 THE WITNESS: It's not the only option.

22                   CHAIRMAN GOGLIA:  You sat through the hearing on  
23 the EPI indicator, didn't you?

24                   THE WITNESS:  Yes, I did.

25                   CHAIRMAN GOGLIA:  You saw the video, didn't you?

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1 THE WITNESS: Yes, I did.

2 CHAIRMAN GOGLIA: When you pull the yoke back and  
3 push it forward, you don't move the flight control full  
4 range, do you?

5 THE WITNESS: No, you do not. But that's --

6 CHAIRMAN GOGLIA: Think about what you're saying,  
7 right, because you're making yourself look stupid.

8 THE WITNESS: But that's the test the mechanics  
9 are to do is to do a pull test on the control column.

10 MR. PUDWILL: Mr. Chairman, do you mind if I  
11 proceed here?

12 CHAIRMAN GOGLIA: No, please proceed.

13 MR. PUDWILL: Alright, thank you. I would just  
14 like to state for the record that keep in mind here that  
15 this is still an open accident investigation. Some of what  
16 has been entered in the Exhibits for this public hearing  
17 might become more important when the Board finally convenes  
18 and makes their final determination regarding probable  
19 cause, and of more interest, from my perspective, issues any  
20 safety recommendations. And this just happens to be one  
21 area, it's a late find, and I was, like you, unaware of this

22     until recently when I produced these drawings.  We --  
23     obviously somewhat handicapped in the obvious there, don't  
24     always have access to the aircraft, the drawings necessary,  
25     but yes, I would agree that this is relatively new

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1 information, but I'm just asking you, as the former director  
2 of engineering for your engineering perspective and/or at  
3 times your perspective as a former maintenance supervisor,  
4 or manager of maintenance training. So I'm merely asking  
  
5 your opinion on these matters.

6 BY MR. PUDWILL:

7 Q Essentially, would you agree that the elevator  
8 dampers configured in this matter, i.e., when the dampers  
9 are reversed as you had pointed out in the drawings, page  
10 five and six, if configured in this manner would be  
11 effective in opposing flutter?

12 A They would be limited in their ability.

13 Q Thank you. Realizing that the elevator travel is  
14 unrestricted when the elevator dampers are reversed and  
15 connected as depicted on pages five and six of Exhibit 7-Q,  
16 and that the dampers offer much less resistance to any  
17 elevator movement in this reversed configuration, could you  
18 now comment on the corrective actions, once again from an

19 engineering perspective, using hindsight, could you comment  
20 on the corrective actions taken by maintenance personnel  
21 related to the flight crew discrepancy noted? I'm asking



22 you to be critical, to critique the troubleshooting, and  
23 specifically what Mr. Chairman just mentioned, the ultimate  
24 corrective action for this flight crew discrepancy.

25 A The ultimate corrective action --

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1 Q Let me rephrase that last part --

2 A I understand what you're saying. You're asking  
3 whether or not the dampers being reversed and then put back  
4 in their normal position would have cleared the pilot

5 report.

6 Q True.

7 A Okay. In this case, no, but if I can just make a  
8 comment. There was a list of things that were possibilities  
9 or potentials that could give the feel of a heavier than  
10 normal flare, and a lot of those dealt with aerodynamics,  
11 use of trim, things of that nature. There were no

12 subsequent writeups. Based upon the evidence, and my  
13 engineering background, I would have to say it was more than  
14 likely an aerodynamic problem. It could have possibly been  
15 ice, I don't know, but --

16 Q Okay. I'm just about finished in this area here.  
17 Let me first share with you, from the Safety Board's  
18 perspective, or at least at the staff level here, the

19 reasons behind asking many of these questions really stems  
20 from the way Emery's program is put together. And really  
21 what I'm referring to is -- specifically is, you know,

22 whether or not nonroutines are issued for this type of work.  
23 In this particular case, we have no evidence that a  
24 nonroutine was written against this flight crew discrepancy.  
25 I recognize that's not required per Emery's maintenance

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1 policy and procedures manual, however, you'd have to admit  
2 that from the perspective of the Board and the staff  
3 investigators involved with this investigation, once again,  
4 looking from hindsight -- it's easier to be critical from  
  
5 our end -- looking back and to critique these events,  
6 however, in looking for the first time at a discrepancy such  
7 as that written up by the flight crew on November 25th,  
  
8 based on the information alone in the log page -- because  
9 that's all we have -- there are questions. It seems  
10 suspect, it seems odd and the reason being is that there's  
11 no trail of the actual inspection methods that were  
  
12 utilized, the manual references that were utilized.  
13 Can you explain why -- I realize you're not in  
14 maintenance, but in accordance with your MP&P -- policy and  
15 procedures manual -- maintenance personnel should have  
16 entered the specific maintenance manual chapter they  
17 utilized during this work. In this case, they indicate that  
18 they found the dampers reversed. They reversed the dampers.  
  
19 Through later testimony indicate that was done in accordance  
20 with maintenance manual chapter 27-70-09. Why is that not  
21 reflected on this card?

22           A     I can't answer that.

23           Q     Right.  Just trying to share with you some of the  
24 perspective on our end on why we have to ask these types of  
25 questions.  One final question in this area.  As the

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1 director of engineering, would you be concerned, once again,  
2 looking back, that maintenance issued an air worthiness  
3 release and returned this aircraft to service without truly  
4 identifying the cause of the noted discrepancy?

5 A If I was to analyze this at that time, would I  
6 have wanted the aircraft to continue in service? I think  
7 the prudent thing to do would be no, knowing what I know  
8 now.

9 Q Thank you. I'd like to move now to the last main  
10 area in my line of questioning, which would be the B-2  
11 check. The inspection program which was accomplished on  
12 January 22, 2000, approximately one month prior to the  
13 accident.

14 A Do you have an Exhibit?

15 Q Yes, specifically, inspection work card B-009,  
16 please refer to Exhibit 11-I for a copy of the inspection  
17 card -- and this is the unsigned copy.  
18 (Pause.)

19 Q Mr. Robbins, do you have the Exhibit before you?

20 A Yes, I do.

21 Q Alright. Could you please read the first

22 sentence of the inspection instructions found beneath the  
23 title, "Right hand and left hand elevator and tab  
24 inspection"?

25 A Yes. "Visually inspect elevators and tabs for

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1 general condition, corrosion, leakage and security of  
2 attachment. Inspect static discharges for general condition  
3 and security."

4 Q That's fine. Excuse me -- could you describe

5 Emery's interpretation of this inspection, specifically  
6 related to the phrase "security of attachment"? i.e., please  
7 identify the work scope required to satisfy the intent of  
8 this work card.

9 A Emery's interpretation is that this is a arms  
10 length visual inspection that does not constitute removal of  
11 panels.

12 Q Would this be consistent with your interpretation  
13 of this?

14 A From what I know of these B-checks, yes it would  
15 be consistent with what I've been told.

16 Q Okay. Therefore you're saying you would not  
17 expect maintenance personnel to inspect the security of the  
18 control tab hinges during this inspection?

19 A I'm saying in the context of what the description  
20 of the inspection is, it's not expected to open the panel  
21 and go in anywhere -- any panel.



22           Q     Well, just to refresh your memory, if that's the  
23 hindrance here, yes, if you were to inspect the inboard  
24 hinge fitting or control tab, the push rod attachment you  
25 would have to remove the faring on the upper surface.

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1 That's not my question. My question was based on Emery's  
2 interpretation of this card, really requested whether or not  
3 you could affirm that you would expect maintenance to  
4 inspect the security of the control tab hinges, and, in  
  
5 effect you have answered that by saying you would not expect  
6 them to open up the panels, and therefore there's no way  
7 they could inspect this fitting.

8 A Based upon what I know of what the interpretation  
9 of what the visual inspection is.

10 Q Therefore, for the record, you would not expect  
11 maintenance to inspect either control tab push rod

12 attachment for security at the dry crank assembly, or the  
13 control tab crank fitting. Is that correct?

14 A In my -- to what I understand it to be, no.

15 Q Once again, I'm asking you, as the former  
16 director of engineering, for Emery's interpretation, so you  
17 are speaking for Emery. I am asking for Emery's  
18 interpretation.

19 A The interpretation is as I indicated.

20 Q Okay, thank you. What about the elevator hinges?  
21 Would you inspect those?

22           A     The ones that are visible -- anything in the --  
23 anything that's visible and basically arm's length, it's --

24           Q     Well, can you explain what the intent of this  
25 card is? I mean dropping back from the explanation, if --

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1 you're indicating you would inspect the hinges but only  
2 those that are readily accessible?

3 A I do a visual inspection, what I can see.

4 Q Would that include the hinges for the control

5 tab?

6 A What I can see, yes, without removal of the  
7 panel. That's been -- and I'm not -- I'm not an expert on  
8 this. I mean probably not the right party to talk to on  
9 this, but as I am -- as I understand it, that's how it was  
10 presented to me.

11 Q To recap then. Just for the record, there are

12 four hinge fittings that attach the control tab to the  
13 elevators, three that are external to the control tab  
14 faring. The fourth, the inboard hinge fitting, we've looked  
15 at earlier, as the source of confusion for the hardware,  
16 i.e., at the base of the crank fitting, can you explain why,  
17 if you were doing an inspection -- I'm asking for your  
18 opinion right now -- why, if you were doing an inspection

19 for security of attachment, you would even bother to look at  
20 the three hinges that didn't require access if you weren't  
21 going to look at the hinge fitting and securities for the

22 other one that did require access?

23 A The card tells me to do a visual inspection.

24 Q For security of attachment. Thank you.

25 A Yes.

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1           Q     Do you think that more experienced DC-8  
2 maintenance personnel at Emery would agree with your  
3 interpretation of this inspection?

4           A     I have no idea.

5           Q     Seems like there's quite a bit of confusion about  
6 this card. This card has come up several different times  
7 from everybody's perspective, it must have some significance  
8 here. Once again, you, as the former director of  
9 engineering -- would not engineering, by the very nature of  
10 generating the maintenance instructions for which  
11 maintenance personnel within Emery or other repair stations  
  
12 or providers rely upon, be responsible for the content and  
13 therefore cognizant of -- or the repository, if you will,  
14 for the interpretations of these various work cards?

15          A     The interpretation of the statement or the  
16 inspection?

17          Q     Essentially engineering writes these cards,  
18 correct?

19          A     There was no engineering at the time this card  
20 was written. But yes, they would revise them and --

21          Q     An engineering function within Emery prior to the

22 growth of the organization as you came to know it --

23 A That's correct.

24 Q -- would have been responsible for the initiation  
25 of this card, correct?

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1           A     Yes.

2           Q     Thanks.  Do you care to comment on testimony  
3 provided by Mr. Hall from TTS yesterday, or that of Mr.  
4 Hoffstetter earlier today, related to the inspection or to

5 this inspection, i.e., that maintenance personnel would not  
6 be able to inspect the security of the control tab  
7 installation without first removing the associated  
8 inspection panels and farings?

9           A     You want my comment on that?

10          Q     Yes.

11          A     I would agree.

12          Q     Let me rephrase it a little bit differently  
13 because I admit the question isn't phrased too well.  My  
14 take on their testimony these past two days is that yes,  
15 they would inspect this based on the content of the verbiage  
16 on the B-009 card for the B-2 check package.

17          A     That they would -- it's a difference of  
18 interpretation, I guess.

19          Q     Okay, thank you.  Can you explain why this  
20 procedure is written so vaguely?  Why do you leave this  
21 interpretation up to the maintenance personnel?



22           A     I cannot tell you that.  I can tell you that it  
23     was derived from the Douglas OM, but I haven't looked at  
24     this specific card in the OM to see if it's written this  
25     way.

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1           Q     In your opinion, is it a good engineering  
2 practice to issue maintenance instructions that are so  
3 general?

4           A     With this particular card, without having a  
  
5 maintenance manual to back up the process, I would have  
6 written it different.

7           Q     Give me one minute here to refer to the  
8 reference.

9                     (Pause.)

10           CHAIRMAN GOGLIA: Mr. Pudwill, would you like to  
11 take a few minute break? I think everybody would like to  
  
12 stretch a little bit, it seems.

13           MR. PUDWILL: I just need a couple minutes, but  
14 that would be great. Sure, thanks.

15           CHAIRMAN GOGLIA: Okay, why don't we take a 15  
16 minute break, and we'll do it promptly in 17 minutes. 6:40,  
17 6:55.

18                     (Whereupon, a 17 minute recess off the record was  
  
19 taken.)

20           CHAIRMAN GOGLIA: On the record, please. Please  
21 proceed.

22

BY MR. PUDWILL:

23

Q     Alright, thank you.  As the director of

24

engineering, wouldn't you prefer to issue specific

25

instructions that are clearly defined in lieu of procedures

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1 that require interpretation by maintenance? This is just a  
2 general question.

3 A Yes, that would be preferred.

4 Q Can you explain why this work card, once again,

5 B-009, found on Exhibit 11-I, does not specify step by step,  
6 the locations, access requirements, and detailed inspections  
7 to be performed during the performance of this work card?

8 A This is not a detailed inspection -- there's two  
9 types of inspections, visual and detailed. In this case,  
10 since it does not call for removal of the panel, the only  
11 thing I can say is if it's written correctly, that it does

12 not require panel removal.

13 Q Okay, thank you. Could you briefly describe your  
14 structural engineering background or experience?

15 A I have very little.

16 Q Can you describe your background as an A&P  
17 mechanic doing sheet metal repairs on aluminum structure,  
18 let's say, flight controls?

19 A Very little sheet metal work.

20 Q Can you describe your first hand experience as an  
21 A&P mechanic performing repairs on any metallic structures,

22 aluminum preferably, related to the removal of corrosion and  
23 subsequent repairs?

24 A Yes, you want me to relate what I've done or --

25 Q Just in general. What type of experience do you

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1 have?

2 A Basic repairs and corrosion repairs, things of  
3 that nature. Clean corrosion, things of that nature.

4 Q I'm curious. How long has it been since you have

5 worked as an A&P?

6 A Exercised my A&P license and worked on an  
7 aircraft?

8 Q Worked as a mechanic.

9 A Ten years.

10 Q You came to Emery in '89 as a maintenance  
11 supervisor, is that correct -- or, excuse me, as an avionics

12 supervisor?

13 A Yes, I do some work with general aviation, is  
14 that applicable?

15 Q Yes, that's fine. Could you describe your  
16 responsibilities at Emery throughout your various positions,  
17 associated with the corrosion prevention and control  
18 program? What's your knowledge of the program? What is

19 your knowledge of how findings are addressed, et cetera?  
20 Instructors training and inspections?

21 A I have limited knowledge on that. I know that

22     there's different levels of corrosion findings, and there's  
23     different definitions of what a level one, level two  
24     findings are.

25             Q     Could you describe your knowledge of the intent

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1 of that program? As far as recurring inspections and  
2 inspection intervals?

3 A My opinion of the -- my interpretation of what  
4 the purpose of the --

5 Q Essentially the purpose or the goal of the  
6 program.

7 A It's to identify components that are corroded or  
8 structures that are corroded in an interval that, in the  
9 reporting process, in the data collecting process, the  
10 entire fleet of DC-8s, having all operators communicate  
11 their findings would produce possibly special inspections or  
  
12 alternative methods to treat specific areas -- things of  
13 that nature, to make the overall fleet a better fleet.

14 Q Isn't the overall goal to maintain corrosion  
15 within the existing program to an acceptable level such that  
16 your set inspection intervals are adequate -- essentially,  
17 you go out, you make an assessment, you have findings. You  
18 classify those findings. If they're acceptable, your

19 inspection program is fine. If -- if corrosion is more  
20 widespread than inspected, therefore a higher  
21 classification, you would make changes to your maintenance



22 program. Would you say that would be a fair assessment of  
23 the overall goal?

24 A Yes.

25 Q Okay, thank you. I'd like you to please refer

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1 now to the overhaul records found in Exhibits 7-S, that's 7-  
2 Sierra. These are related to the right elevator assembly  
3 that was installed on the accident airplane during the  
4 latest D-check in November 1999.

5 A I have it.

6 Q Okay. Please refer to -- let's see, starting on  
7 page five -- this entire Exhibit kind of addresses the  
8 lineage of these controls, et cetera, as the 8130-3 air  
9 worthiness approval tag on page two, going backwards here.  
10 Page one is the serviceable part information tag, part  
11 number, serial number, et cetera. Pages three and four  
  
12 indicate that this assembly came from FAA-FAR -- FAA  
13 approved repair station Complete Controls Inc., and starting  
14 on page five, we essentially have a summary of the type of  
15 work that was performed on these elevators, or in this case,  
16 the right elevator.

17 I'd like to refer you to the main body of this  
18 section, "Primary/hidden damage" starting about the middle

19 of the page. And specifically, pages six through eight,  
20 line items one through -- well, starting on five -- one  
21 through 149 different discrepancies that were initially

22 noted. Keep in mind that this is during the overhaul of the  
23 elevators.

24 Now I'd like to read a few of the findings  
25 listed, just for your future reference. I refer to line

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1 item 73 on page seven. I want you to understand this is  
2 just identifying the discrepancies noted during overhaul.  
3 "Frozen rod end bearing on rod assembly." I haven't  
4 bothered to take this to the next step and source these IPC  
5 reference numbers here, but I'm assuming this is the push  
6 rod for the control tab installation.  
7 Item -- take the next one -- 74, "Rod and bearing  
8 on rod assembly frozen, corroded." 76, "Corrosion on yoke  
9 end of rod assembly." I'm assuming that's the drive crank  
10 assembly for the push rod. 77, "Corrosion on shaft of rod  
11 assembly". Item 79, "Rod eye bearing unknown, adjustable  
12 end of the rod end" i.e., the end that attaches to the crank  
13 fitting. "Rough in operation". 80, "Corrosion." 81,  
14 "Corrosion on push rod". 85, "Corrosion on hardware  
15 fitting." 86, "Exfoliation of fitting". 88, "Frozen  
16 bearings". 92, "Corrosion on all eyeball bearings", i.e.,  
17 the hinges. 93, "Rough or frozen bearings on eye bolt".  
18 Then to page eight, item 136, "Gear tab hinge  
19 fitting is double drilled with holes elongated." 138,  
20 "Control tab -- three hinge fittings cracked". 139,  
21 "Control tab hinge fitting number four, cracked". Item 142,

22 "Gear tab hinge fitting, number seven, has corrosion."

23                   Based upon your experience at Emery, and as an  
24 A&P licensed mechanic, wouldn't you agree that these types  
25 of findings are expected on flight controls as old as these?

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1           A     Expected?

2           Q     Anticipated, expected?  Wouldn't you expect to  
3 see these types of findings during an overhaul, especially  
4 if the periodicity on that overhaul is at D-check intervals

5 or greater?

6           A     I -- to be honest with you, I have nothing to  
7 gauge this by.  This was the first detailed overhaul flight

8 control or elevator that I had really gone through, so I --

9           Q     As the director of engineering, is that just  
10 because of you're not as familiar with structures as  
11 avionics, or --

12          A     It's basically -- you don't go through a lot of  
13 these.  I mean I -- you don't see a lot of these flight  
14 control surfaces go through a --

15          Q     Would you, as the director of engineering,  
16 require or ask your subordinate, i.e., the structural  
17 engineer to review ... records for critical items installed  
18 on your fleet of aircraft, such as flight controls?

19          A     Not as a general practice, no.

20          Q     Would you not look at items during overhaul or  
21 otherwise for possible clues towards improvements in the

22 reliability program or maintenance programs?

23 A You mean look at this flight control and see the  
24 damage on it and whether we can improve on the CPCP program?

25 Q CPCP program or maintenance program in general?

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1           A     This flight control did not come from Emery. I  
2     mean it wasn't a --

3           Q     I realize that. It's from third party  
4     maintenance, Complete Controls, Inc., but the set of  
  
5     elevators was ultimately installed on the accident aircraft  
6     and it appears that this is a fairly common practice, to  
7     source -- certainly it's a common practice within industry  
8     to source flight controls and other line replaceable units.  
9     Can you describe how you would track repairs that had been  
10    done to an installation such as this when it does not stay  
11    with one particular aircraft? In other words, essentially  
  
12    the elevators in this particular case, are being treated as  
13    a line replaceable unit.

14          A     As the component is serialized, the -- the  
15    serialized unit would be tracked so you would always know  
16    where it was.

17          Q     Would you agree that the types of problems that I  
18    just listed from the overhaul records could ultimately  
  
19    affect the safety of flight if -- and once again -- if not  
20    caught by an effective maintenance and inspection program --  
21    during overhaul or otherwise?



22           A     Yes.

23           Q     Okay.  Then can you explain why, in knowing the  
24 types of damage that you'd expect to see, and -- this might  
25 be beyond the scope -- based on your structural experience,

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1 but in my mind, based on expecting these types of findings -  
2 - and happen on all structures, all aircraft, more on older  
3 aircraft, obviously, if you're talking corrosion et cetera -  
4 - but we in engineering have to expect these types of  
  
5 problems when we write our maintenance programs, in my  
6 opinion anyway -- basically, would you not or could you  
7 explain why Emery has not defined a more thorough inspection  
8 program in this area? And once again, I'm referring back to  
9 this B-009 card, to insure the continued airworthiness of  
10 the airplanes based on the knowledge of these types of  
11 findings?

12 A You're asking me if I can explain the 009 based  
13 upon these findings?

14 Q No, essentially I'm asking you whether or not you  
15 feel it would be appropriate to further specify additional  
16 work steps on a card such as this inspection, this B-009,  
17 which is intended to inspect for security and attachment.  
18 When you do these B-checks, at whatever periodicity, you

19 might accomplish this particular inspection, whatever the  
20 interval is, things can happen. Degradation, corrosion,  
21 loss of safeties, hangar rash, forklift, you name it. In

22 your opinion, is that not the purpose of the B inspections,  
23 or intermediate inspections in general, to look for the  
24 overall condition of the aircraft? And if you have an  
25 inspection related to security and attachment, or an

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1 installation of a critical flight control component that you  
2 would not want to look at a little bit closer than just the  
3 general visual inspection?

4 A There are more detailed inspections in the C-  
  
5 checks, and those are every two years. I don't know how  
6 much corrosion is -- migrates or builds up between the two  
7 year C-check interval, but your question is whether or not  
8 the B-checks should be expanded to include a more detailed  
9 corrosion inspection? Is that --

10 Q Let me back up just a minute here, it's easy to  
11 lose your train of thought here. Take you back to this

12 Exhibit, 7-S, with all the findings related to corrosion.  
13 If you require a minute or two, that's fine, but of all the  
14 areas of corrosion that I listed, and I really only listed  
15 corrosion for one reason, and that is, I don't find any  
16 corrosion external to the flight controls. And I would  
17 expect that. Surfaces are painted. Moisture doesn't  
18 accumulate there. Where corrosion occurs, as you're well  
19 aware in engineering, is internal structure.

20 If you refer back to yesterday's flight  
21 presentation that you gave, you presented several photos  
22 depicting various angles, views of the control tabs and

23 elevators, and clearly on those photos or in that  
24 presentation there were several shots depicting drainage  
25 holes, one of them being right in the center of this inboard

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1 end of the elevator immediately above the faring for the  
2 control tab attachment. Can you explain why that drain hole  
3 would be there? Obviously to drain moisture out of that  
4 area.

5 All these items that are listed -- corrosion on  
6 torque tubes, frozen bearings, et cetera -- don't you think  
7 it would be prudent to inspect for corrosion at intervals?

8 A I think that it should definitely be looked at to  
9 be included in the CPCP documents, so that once again, the  
10 fleet can improve. If it's not already. I'm not sure if it  
11 is.

12 Q Well, essentially, would card B-009 be effective,  
13 if you were indeed looking for corrosion as it states --  
14 "Visually inspect elevators and tabs for general condition,  
15 corrosion" et cetera, et cetera -- when we know the  
16 corrosion is going to be internal to the structure,  
17 predominantly, and we're not even looking? Or is this  
18 simply a case Emery didn't want to look?

19 A I certainly don't think it was a case that they  
20 didn't want to look. I don't -- again, I think it's an  
21 issue that would be best addressed in the CPCP program.

22           Q     Alright, nothing further on that.  Before I close  
23     out this line of questioning, I'd like to refer once again  
24     to the installation procedure for the control tabs,  
25     specifically maintenance manual Chapter 27-3206.

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1           A     Is this 7-L?

2           Q     Yes, it is.

3           A     I got it.

4           Q     Alright, if you recall, it's probably been an

5           hour ago already, but we went to page 203, which is page

6           three of the Exhibit, and I had asked you for your

7           definition of the line immediately above Section E,

8           operational check. And I'll read the line once again.

9           "Inspector, check control tab installation security and

10          safeties." Do you recall this discussion?

11                A     Yes, I do.

12                Q     Do you recall your response to my question

13          regarding what areas you would inspect and what you would be

14          looking for during this inspection --

15                A     Yes, I do.

16                Q     -- since the steps are not clearly defined within

17          this procedure?

18                A     Yes.

19                Q     Okay, thank you. Could you then please explain

20          why this instruction and the installation procedure,

21          inspector to check control tab installation security and

22          safeties means something totally different from that defined



23 by Emery, using similar verbiage on inspection card B009,  
24 which once again states in part, "Visually inspect elevators  
25 and tabs for general condition, corrosion, leakage and

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1 security of attachment."

2 A This inspection listed here at Exhibit 7-L is an  
3 installation, not just a general visual inspection.

4 Q I don't think anybody here is contesting the

5 meaning of the words general visual inspection. What we are  
6 questioning is the intent of a card that says inspect for  
7 security of attachment.

8 A I've already indicated that the card could use  
9 improvement. I don't know -- I'd have to go back to the ...  
10 to see what the origin of the card was to discern what they  
11 were driving at.

12 Q Thank you. I have nothing further in this area.  
13 I have one remaining area, Mr. Chairman. And this area  
14 pertains to instructions for continued air worthiness and  
15 the surveillance program at Emery.

16 Mr. Robbins, could you please describe how Emery  
17 revised those DC-8 manuals, i.e., the maintenance manual,  
18 the illustrated parts catalog, et cetera, that originated

19 with previous operators?

20 A How they were revised?

21 Q Yes.

22           A     By supplemental manuals.

23           Q     Can you explain how that would be available to  
24 maintenance personnel, such as for the particular aircraft  
25 during the D-check for these types of procedures?

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1           A     There's a complete set of manuals, including  
2 supplemental manuals available at all stations, including  
3 the vendor maintenance facilities.

4           Q     Are you aware of any supplemental information in  
  
5 this manual that would help shed some light on these  
6 procedures where we're missing hardware identification  
7 information?

8           A     No.

9           Q     As previously established, Emery issued a fleet  
10 campaign directive to inspect the condition of DC-8 elevator  
11 control tab push rod attachments. Can you explain why

12 engineering never issued any associated changes to the  
13 applicable Emery maintenance manuals or illustrated parts  
14 catalogs, based upon the findings of this investigation?

15          A     I don't know if they did or did not. I'm not  
16 aware of what happened afterwards.

17          Q     As previously established, Tennessee Technical  
18 Services issued a maintenance inspection alert to clarify

19 the installation of the elevator dampers based upon the  
20 troubleshooting that we discussed a little while ago that  
21 occurred on November 25, 1999 in reference to the flight

22 crew discrepancy "excessive aft pressure to flare the  
23 aircraft". Can you explain why Emery never issued any  
24 maintenance changes related to these findings?

25 A I -- once again, I don't know that they -- if it  
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1 was or was not done.

2 MR. PUDWILL: Mr. Chairman, I'd like to ask that  
3 at least some consideration be given to some type of follow  
4 up in these two areas such that before we meet for the final

5 Board meeting, the Board can ascertain whether or not Emery  
6 is taking any steps to correct the deficiencies that have  
7 been noted to date in the maintenance program.

8 CHAIRMAN GOGLIA: Rest assured we will have  
9 plenty of opportunity.

10 MR. PUDWILL: Alright, thank you.  
11 BY MR. PUDWILL:

12 Q In light of the discrepancies that we've been  
13 talking about here, primarily chapter 27-3206, the  
14 associated work card, installation procedures that TTS is  
15 required to use as part of Emery's Part 121 maintenance  
16 program, and the deficiencies regarding specific  
17 installation instructions that clearly identify the  
18 hardware, method of attachment, orientation, type of safety,  
19 et cetera, and the lack of details regarding inspection  
20 requirements, do you believe that Emery has fulfilled the  
21 requirements established by Federal Aviation Regulation Part

22 121.373, once again, this is Exhibit 7-Tango, subpart A, and  
23 I'll read, "Each certificate holder shall establish and  
24 maintain a system for the continuing analysis and  
25 surveillance of the performance and effectiveness of its

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1 inspection program, and the program covering other  
2 maintenance, preventive maintenance and alterations, and for  
3 the correction of any deficiency in those programs,  
4 regardless of whether those programs are carried out by the  
  
5 certificate holder or another person"?

6 A You're asking me for a legal interpretation or a  
7 legal --

8 Q I'm asking you for -- I'm asking you whether or  
9 not you, as the former director of engineering, feel that in  
10 light of the discrepancies previously noted, i.e.,  
11 installation and inspection requirements associated with the

12 control tab at the missing bolt location that's been  
13 previously identified, in light of those discrepancies, do  
14 you feel, or in your opinion, is the maintenance program as  
15 is meet the requirements established by the FAR 121.373  
16 subpart A.

17 A Based upon what's before me, I would say probably  
18 not.

19 MR. PUDWILL: I have no further questions, thank  
20 you, Mr. Robbins.

21 CHAIRMAN GOGLIA: Okay, the remainder of the



22 technical panel, are there any additional questions?

23 HEARING OFFICER HILLDRUP: Yes, sir, just a

24 couple of questions.

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1 DIRECT EXAMINATION

2 BY HEARING OFFICER HILLDRUP:

3 Q Mr. Robbins, obviously Emery felt it was  
4 important during the B-check, B-2 check, that is, to check

5 for the security of attachments on the elevators and control  
6 tabs as established in the B-9 card. And you may have said,  
7 and I apologize if so, could you comment on why that would  
8 be important? Why would you be checking security of  
9 attachments?

10 A Why -- on the B-2?

11 Q Yes, why would you -- why is that important?

12 A It's important, while you're up there working  
13 on -- doing other maintenance activities, it's a good idea  
14 to go look around to see if there's anything obvious that  
15 should be corrected.

16 Q Okay, let me rephrase it another way. What would  
17 be the consequences, for instance, if you were to have a  
18 loose attachment, or a missing bolt, if that were the case,

19 at one of the attachments. What might the consequences be?  
20 Just your opinion.

21 A I mean it could go up to an including loss of the

22 control surface, I would assume.

23 Q Flutter, perhaps, actual physical damage. Okay.

24 Is there any reason to believe that an attachment that is

25 covered by a faring is any less important than one that is

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1 not covered by a faring? From that perspective?

2 A No.

3 Q And is there anything in the B-009 card itself  
4 that specifies that that certain attachments are not to be

5 looked at?

6 A Not that I know of.

7 Q Thank you. Just one more question. I think you  
8 had mentioned during earlier testimony about the mechanics  
9 that had detected the damper reversal had indicated -- I  
10 believe you had indicated that they had come across this  
11 before. I believe you had said it, is that correct?

12 A Yes, at some point in the past, that's what was  
13 relayed to me, that --

14 Q Do you know if that was while they were with  
15 Emery?

16 A I have no idea.

17 Q Okay, yes, that was news to me, but thank you  
18 very much. That's all I had.

19 CHAIRMAN GOGLIA: Okay, we will now go to the  
20 parties and the Airline Pilots Association.

21

DIRECT EXAMINATION

22

BY MR. GUNTHER:

23

Q Mr. Robbins, when was the MRB established?

24

A The MRB established -- I don't know the exact

25

time.

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1           Q     Was it before or after the accident, the  
2 maintenance reliability board?

3           A     Oh, it was well before.

4           Q     You talked about before the damper reversals, and

5 the crew and the actions that they took, and your  
6 familiarity with it. Being a licensed mechanic, knowing  
7 what you know now, would you have released that aircraft to  
8 service after they had been swamped without a test flight?

9           A     I probably would have gone through some  
10 additional troubleshooting -- not troubleshooting, but  
11 additional functional checks, and then I would have

12 consulted somebody else -- maintenance control or somebody  
13 else, if I was the line mechanic. I may have -- knowing  
14 what I know now.

15           Q     You also talked about problems with complaints  
16 from pilots with regard to debriefs for things like  
17 pressurization, radar, problems that they've had occur. Did  
18 Emery, at the time they were in operation, run an all-

19 weather worldwide operation at that time?

20           A     Yes, they did.

21           Q     They did. Would it bother you, if you were a

22 pilot, to be dispatched with an inoperative radar?

23 A If -- yes, it would, if I knew I was being  
24 dispatched without a radar, I'd be upset.

25 Q And your background's in avionics, am I correct?

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1           A     That's correct.

2           Q     What procedures do you have for testing things  
3 like that?

4           A     There's limited troubleshooting or testing

5 procedures in the maintenance manuals. There's a self-test,  
6 basically, and then you can paint the ground and paint other  
7 objects, but it's not a storm cell of adequate density to  
8 accurately put on the scope. It's a difficult process.

9           Q     What about pressurization problems. You said  
10 that the -- you can't duplicate on the ground the type of  
11 situations you would get airborne.

12           A     Yes, in some cases, because the aircraft moves up  
13 and down in the atmosphere, the outside pressurization --  
14 the outside pressure changes. In a lot of cases your  
15 pressurization reported problems are due to fluctuations  
16 while the airplane's climbing or descending. Those are  
17 difficult to produce -- reproduce on the ground because you  
18 can't change the outside air pressure.

19           Q     Did you ever have an aircraft that was damaged  
20 due to hail with inoperative radars?

21           A     With inoperative radars? I don't know of any  
22 specifics, sir.



23           Q     When you were the director of engineering, you  
24     were responsible for both maintenance programs and  
25     publications?

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1           A     That's correct.

2           Q     You have anything to do with turnover logs?

3           A     No.

4           Q     Do you know what a turnover log is?

5           A     Yes.

6           Q     Could you describe what one is for me?

7           A     The turnover log is when there's a shift change  
8           or a personnel change on a particular task that's not  
9           completed, there should be a written description of the work  
10          that's been accomplished, and the status of the work at the  
11          time of the turnover of personnel.

12           Q     Mr. Wood described some of the paperwork that was  
13          so-called "locked down" at the Emery facility after the  
14          accident with 79 Uniform. Were those turnover logs -- would  
15          you consider that they may have been locked down?

16           A     It's hard to say if the -- if the sweep through  
17          to gather up the paper that is relevant, if that would have  
18          been picked up, I can't really say on that.

19           Q     Is there a possibility that they could be in the  
20          long term storage also?

21           A     A turnover log?

22

Q Yes.

23

A I -- I don't know. I don't know.

24

Q Approximately how far into the FCD did you leave?

25

A Into the FCD?

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1 Q Yes, the fleet campaign directive.

2 A Did I leave?

3 Q Uh-huh.

4 A Can I look at the date on the 27 --

5 Q Sure.

6 A I was already gone.

7 Q Who was the director of engineering during the

8 FCD after you left?

9 A Dan Kirkpatrick.

10 Q Do you have any first hand knowledge, or  
11 knowledge of the results of that FCD?

12 A No, as I said, I saw the list of the results  
13 briefly, but I didn't take a very good look.

14 Q If you, in your previous position as director of  
15 engineering, had run a fleet campaign direction for  
16 instance, security of push pull rods, anything to do with  
17 flight controls, other safety of flight items like that,  
18 after the FCD was complete, would you have made the results

19 available to any of your vendors?

20 A I don't think I would have. If there was a  
21 procedure that had been born out of the results, I would

22 share that procedure, but the results of the FCD itself, not  
23 as a standard rule, no.

24 Q Why not?

25 A Because -- basically because -- if you will, it's

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1 uncooked, it's raw data that really should be -- before you  
2 go in and distribute information to -- there should be an  
3 analysis process that determines -- there should be an end  
4 result, okay. If I found something, if I got a finding on  
  
5 one of these things, what caused it? How did it get to be  
6 in the shape or condition it's in? And see if there's a  
7 root cause. That would be preferable to send to a vendor  
8 and to inform your line and your maintenance staff as to  
9 what the root cause is, rather than a result. That way you  
10 can -- basically, in an educational process, you can prevent  
11 the end result rather than just give them an end result.

12 Q Well, not to disagree with you, but isn't that  
13 censoring safety information that they might need?

14 A Of the maintenance people?

15 Q Yes, Part 145 or one of your vendors that may  
16 have supplied a part or an assembly that you may have found  
17 in a fleet campaign that may have a problem.

18 A It would all depend upon the results of the

19 tests. I mean this is subject to lots of different factors.  
20 I would not -- if there was a safety issue, I would not --  
21 certainly would not withhold the information. I would

22 inform them if I felt it was an important point or a safety  
23 issue at stake.

24 Q You talked about work cards and supplemental  
25 information. During the time that you were the director of

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1 engineering, was there any attempt made to change the work  
2 cards at all?

3 A There were ongoing processes to revise the work  
4 cards to make them better, yes.

5 Q And what was the result of those?

6 A They -- we revised cards. I mean they went  
7 through the MRB for various reasons, to boost reliability,  
8 to correct deficiencies in the cards, various reasons. But  
9 there was an ongoing -- actually it was a continual effort  
10 to look and revise the cards and take care of necessary  
11 issues with them.

12 Q Knowing what you know now, would it have been a  
13 good idea, or do you think it would be a good practice, to  
14 place the applicable maintenance manual effectivity ... on  
15 the B, C, and D cards?

16 A It's a good idea, but it's nearly impossible with  
17 a very diverse fleet. You would have to -- and I looked  
18 into this at one point -- and what you would have had to do

19 was develop about five different maintenance work card  
20 decks, which is a huge effort, in order to make them  
21 specific.



22           Q     So you wouldn't try to establish a technical file  
23     for each airplane?  One that would contain work cards that  
24     were applicable to that particular airplane?

25           A     No, that's not true.  I mean we did try to do

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1 that, and the -- this took place after I left, but there was  
2 an effort to digitize the manual to make one manual which  
3 would have facilitated on a -- even an MSG-2 card, or an  
4 MSG-3, which I think they were working toward -- to make

5 those specific links to the maintenance manual. That was a  
6 work in process or progress.

7 Q You talked about pilot debrief forms before. You  
8 said you've seen a few of them. How many approximately over  
9 the years did you actually see? Just say an estimate. I  
10 realize you're not going to be able to give me an accurate  
11 number?

12 A Fifteen. Something like that.

13 Q How many do you think were actually generated?

14 A Oh, I have no idea.

15 Q From a maintenance standpoint, as the director of  
16 engineering, if you want to look at a few of them, who  
17 would they have gone to? Who would have looked at the rest  
18 of those?

19 A I don't know the actual stops. I know they went  
20 to various people within maintenance and operations, and  
21 because I wasn't directly involved with line operations, I

22 didn't get involved that heavily. A lot of them came to my  
23 attention to -- purposely I was trying to validate the pilot  
24 report, but like I said, most of them I did not get involved  
25 with.

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1           Q     Did you have distribution problems coming from  
2 flight operations to maintenance, is that why you'd only see  
3 a few of them?

4           A     No. I don't know if at the time I was in the  
  
5 distribution list, selected to receive the debriefs or  
6 whatever.

7           Q     And you were the director of engineering at that  
8 point?

9           A     Yes. Well, a portion of the time, yes.

10          Q     You expressed the opinion that you thought  
11 management was trying to do a good job, trying to do things

12 correctly. Were you provided the necessary tools and  
13 funding to do that?

14          A     I can speak for my own situation, that when I  
15 asked for funding that was properly justified, I can't  
16 recall ever being denied funding for tooling, personnel,  
17 anything.

18          Q     So you believe the engineering department was  
  
19 properly staffed for the size airline?

20          A     It was being built up at the time.

21          Q     At the time that you left, approximately how many

22 people worked in engineering?

23 A Roughly 25 to 30 people.

24 Q Out of that number, approximately how many

25 supervisors or management people in engineering?

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1 A Three managers in the engineering department.

2 Q All full time?

3 A All full time? Yes.

4 MR. GUNTHER: I have no further questions.

5 CHAIRMAN GOGLIA: Thank you. The Boeing Company.

6 DIRECT EXAMINATION

7 BY MR. BREUHAUS:

8 Q Yes, just one follow on question from Mr.

9 Gunther's questioning. How many of your employees were  
10 engineers?

11 A Four engineers and there were two assistants that  
12 were -- had associates degrees.

13 MR. BREUHAUS: Thank you.

14 CHAIRMAN GOGLIA: Tennessee Technical Services.

15 DIRECT EXAMINATION

16 BY MR. PORTER:

17 Q Yes, we have a few questions, thanks. Are you  
18 familiar with the MPPM which basically outlined the

19 qualifications for the director of engineering?

20 A At this time?

21 Q Uh-huh.

22           A     No.

23           Q     How about when you took the position, sir?  Or  
24     accepted the position?

25           A     Do I recall what it was at the time, no.

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1           Q     Okay. Did it require the director of engineering  
2     to hold a Bachelor of Science degree, Aeronautical degree or  
3     equivalent and an A&P license -- did it sound like something  
4     like that?

5           A     I don't -- I don't know.

6           Q     Okay. Before you took the position as director  
7     of engineering, you were I believe, a manager of training?

8           A     That's correct.

9           Q     So you would have been responsible for, I think  
10    basically you touched on it, assembling the training  
11    programs, tracking the people that would have been trained

12    or what have you, and insuring that the people that needed  
13    recurrent training or what have you would receive that. Was  
14    that part of that role?

15          A     That was part of it.

16          Q     Okay. If we can go back to a Harold Camden  
17    interview, which was the PMI in Cincinnati, and it's Exhibit  
18    7-Charlie Charlie, I wanted to read a few excerpts from that

19    if I may, which is on page 18, and see if you can help me to  
20    understand what he was prescribing.

21          A     Can you give me a second to get that?



22 Q Sure.

23 A 7-Charlie Charlie?

24 Q Yes.

25 CHAIRMAN GOGLIA: Did you say seven or 17?

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1 MR. PORTER: Seven.

2 CHAIRMAN GOGLIA: I don't think we go that high  
3 in seven.

4 MR. PORTER: It is --

5 CHAIRMAN GOGLIA: 17-Charlie Charlie.

6 MR. PORTER: That would be 17, I'm sorry.

7 Q Are you there?

8 A What page?

9 Q It's page 18. It actually starts on 17, and I  
10 might jump around between 17 and 18 a little bit, but I'll  
11 try not to be confusing.

12 A Page 18.

13 Q Basically, this is an interview with Harold  
14 Camden in Cincinnati, and they were asking his  
15 interpretation of -- earlier in here, the relationship  
16 between Emery and the FAA, and problems that they had  
17 identified or what have you, or were working to resolve or  
18 improve with their relationship in Cincinnati. And when you

19 get on to page 18, he was asked the question, -- let me  
20 start here -- there's a question actually on line 25 on page  
21 17, and I'll read it -- and you don't really get the full  
22 sense of the build up to this, but if it doesn't work out,

23 I'll go back a couple page and read both of them to you.

24 It says, "What about all the time that was going

25 on, the pilot union collected an enormous amount of data to

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1 concern repeated discrepancies, writeups that they were very  
2 concerned about. Did you ever get involved with any of  
3 these?" And his answer is, "On repeat writeups?" and the  
4 question, "Yes." He said, "We were working with it every  
  
5 week. It got to the point that I had weekly meetings with  
6 my staff and Emery staff, the managers, and we would go over  
7 the problem areas of the past week where they had found, in  
8 places that they needed to address. I mean normally a PMI  
9 doesn't do this, but we saw a need that just had in order to  
10 keep going" -- and that's how the transcript reads. "There  
11 was very cooperation and we had, I think the meetings we had  
  
12 solved a lot of their problems." There's a few words that  
13 are missing there.

14 Now, on line 16 through 19, --

15 A On page 18?

16 Q On page 18, line 16 through 19, Mr. Camden, I  
17 think is trying to point out, "The biggest problem was, I  
18 think, the training breakdown. They trained, but the

19 tracking of it wasn't the best in the world because a lot of  
20 the mechanics hadn't been to training for two to three  
21 years." And I was just wondering what the problem might

22 have been in the training program for actually tracking the  
23 people that were trained and who was requiring training at  
24 given intervals, what the shortfall may have been at the  
25 time?

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1           A     This is -- first of all -- this is two years  
2 after I've -- nearly two years after I left.

3           Q     Okay, do you remember what dates you were in the  
4 manager of training? I think you were there like for six

5 years, right?

6           A     About six years, yes.

7           Q     Okay. Do you think that it's possible that it  
8 might take six years or a little bit of time for a system to  
9 break down to where you would have holes, as he seems to be  
10 speaking to here to where you would have people who weren't  
11 getting their recurrent training?

12          A     Do I think it takes six years for what?

13          Q     Do you think it's -- you were in -- alright, let  
14 me rephrase that. As the manager of training, can you tell  
15 us how you tracked the training that was given to the Emery  
16 mechanics?

17          A     We had training files on every mechanic.

18          Q     Okay, now was there a system that would flag you  
19 in any way when somebody was due for recurrent training?

20          A     No, at the time the managers or the line station  
21 managers were required to track that.

22           Q     Okay, were the supervisors ever given the  
23 opportunity to say, hey, I've got somebody here that is  
24 either exceptional or needs some work or what have you and  
25 would want to put them in some additional training, or get -

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1 - have them receive some more training? Was that an option  
2 or was the system closed to where you got the minimum amount  
3 of training and that was it?

4 A No, it happened quite frequently with someone

5 that was highly motivated or needed some additional training  
6 at another time, we made room for everybody.

7 Q So you wouldn't have any recollection or any idea  
8 why the PMI in Cincinnati would be mentioning this as one of  
9 their -- one of the issues that he saw was a major problem?

10 A As I said, this is two years after I've been  
11 gone.

12 Q Okay, thank you. Now you've been through this  
13 with Mr. Pudwill and Mr. Carbone's been through it here a  
14 little while back, I was wondering -- the three FCDs that  
15 were issued after it was determined, or the bolt was not  
16 found at the scene of the accident and it was determined  
17 that that could have been a proximate cause, though there's  
18 no final on that yet, and Emery issued three FCDs -- 27-7,

19 27-8, 27-8 revision one, and I was wondering if anybody at  
20 Emery had a complete tally on what the results of each one  
21 of them were? What the findings were on the aircraft for



22 the fleet?

23 A I assume that there is. I haven't seen it. I  
24 don't know.

25 Q Do you know if that data was ever provided to the

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1 maintenance providers?

2 A I don't know.

3 Q You think that it might have been smart to turn  
4 it over to the 145s or the other heavy maintenance

5 facilities that were doing that type of work for you?

6 A Well, as I was talking with ALPA, depending upon  
7 the results of that, if the results were negative or  
8 inconclusive or whatever, like I said there would be -- I  
9 believe that the prudent thing to do is to provide some  
10 basis of -- some analysis with the data so that -- I mean if  
11 you just give them a bunch of numbers of a page, somebody

12 should do some compilation and figure out what exactly is  
13 going on. So, and once again, I can't speak for the  
14 disposition of these FCDs.

15 Q Okay. When you were -- you were pretty much  
16 responsible for the reliability program there for some time,  
17 correct?

18 A I was the director over it, yes.

19 Q Okay. Now when you send -- how do you measure  
20 your reliability, or what gauges that you would use to  
21 decide that you have a problem with some system on the

22 aircraft, that you would absolutely say, hey, maybe we need  
23 to sit down and rethink the maintenance intervals or the  
24 type of maintenance that we're doing on this specific system  
25 on the aircraft? What would you use to measure that?

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1           A     You can use -- there's over pars, there's repeat  
2 writeups, there's any number of mechanisms that will trigger  
3 a look at the maintenance programs.

4           Q     So was there any -- was there any thought to  
  
5 looking at the findings from components that would be sent  
6 out to 145s to try to understand different conditions that  
7 would be identified during the tear down reports, initial  
8 inspections or what have you, and then try to build that in  
9 to the maintenance package to try and prevent some of those  
10 occurrences from happening again?

11          A     At the time I was over it, the components that  
  
12 came in and out of heavy maintenance facilities did not get  
13 put into the data because they were not - it was not  
14 operational barriers, it was not operational problems. In  
15 other words, we tracked operational issues. When the  
16 aircraft was flying and had a failure, we would track  
17 components on that basis, but components coming in and out  
18 of a heavy maintenance provider, the system was not set up  
  
19 to do that.

20          Q     Do you think that that would have helped you get  
21 your arms around maybe, or help prevent some wear and tear

22 on the airplane, or staying ahead of issues that could  
23 possibly hinder your dispatch reliability?

24 A I think that yes, in some cases, the purchasing  
25 or procurement would flag some items that they were having

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1 problems with -- having a hard time finding a vendor that  
2 could provide a workable unit. Those things did happen.  
3 But yes, I think a better -- an improvement to the program  
4 would have been to, maybe not mix it with the operational

5 data, but at least perform some sort of analysis on it.

6 Q So analysis of components that may have come back  
7 from reliability program to try and understand their  
8 condition, basically, would have been driven by economics,  
9 if we started to see, or you started to see that components  
10 were wearing out a little bit faster, or you were having to  
11 spend money twice to get something fixed, that would --

12 A Economics is not really the driver. The driver  
13 is dispatch reliability and safety - those types of things.  
14 If you start seeing failures, those are the things you want  
15 to get. Obviously, the money goes up when you have high  
16 failure rate. So I mean it's definitely a consideration in  
17 that, but it's not the driver.

18 Q Okay. Do you know if Emery tracked zero time  
19 failures from vendors to try and understand who is maybe  
20 outperforming --

21 A Back to stock items?

22 Q Yes.

23 A It depends on the way the -- it depends on the  
24 status of the part, the parts tag. The parts tag made it  
25 through the system, then it would be caught. If the parts

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1 tag, if it was identified and they just filled out the tag  
2 and said bad from stock and sent it back, the system was not  
3 set up to catch those items, so it was a mixed bag on those.

4 Q Okay. Let me see -- in a previous interview with

5 Mr. Obromski (ph), which I believe is out of the San Jose  
6 office in California, he spoke to Emery not providing or not  
7 having reliability reports for a four month period of time,  
8 and would you have been familiar with or been involved with  
9 any of that while you were out in California, or were you  
10 still training at that point?

11 A I was the manager of training at that time.

12 Q I'd like to get back to, if I may,  
13 troubleshooting of the elevator system. When we were  
14 talking several times in the past couple days and getting  
15 several opinions on troubleshooting procedures and what is  
16 trained and not trained and what is standard procedure from  
17 an experienced A&P and what we do -- I'm an A&P mechanic as  
18 well. When the aircraft landed on November 25, '99, with

19 the -- I've got it right here, we've probably all have got  
20 it memorized by now -- "Elevator requires more back pressure  
21 than normal flare of the aircraft, also during elevator



22 checks CG to 25.4, 2F 23.3 percent".

23 When you were speaking to this one with Mr.

24 Pudwill, you listed or you spoke to a series of scenarios

25 that could possibly have caused this log book entry, or the

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1 pilot to find the elevator system to be deficient in some  
2 way on that landing, and you spoke to air speed, weight,  
3 possible trim problems, flap settings, stuck cable,  
4 bearings, and then we got into possibly the elevator being

5 iced. And I wanted to just touch on one of them. And that  
6 would be a potential jam or frozen bearing in the system,  
7 and I wanted to just kind of get your opinion and get a feel  
8 for what you would think, referencing to the maintenance  
9 manual, of course, what you would need to do to isolate  
10 different sections of the system to identify a potential  
11 frozen bearing that you may feel in the control column.

12 A There's a procedure listed in the maintenance  
13 manual for isolation of the system.

14 Q Okay, so in your opinion, if you're isolating the  
15 elevator from the system, you're -- obviously you're up in  
16 the tail cone now.

17 A Correct.

18 Q And you're disconnecting your torque tube input

19 to the elevator drive crank, and then you're probably going  
20 to disconnect your cables to the crank that would go to your  
21 control tab. Is that correct so far?

22           A     That's according to the procedure, yes.

23           Q     Okay. Now, you've got the elevator completely  
24 eliminated from the cable system coming from the control  
25 column. Okay, now you could manipulate the elevator and try

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1 and listen or feel or -- we all know what the elevator's  
2 supposed to do with the damper, we know it's mass balanced  
3 forward or what have you, and try to identify any kind of a  
4 squeaking or -- you know the routine. A bearing that could  
  
5 possibly be frozen or a bolt that doesn't like the way it's  
6 installed or something like that-- over torqued or -- if you  
7 were going to isolate the control tab from the elevator,  
  
8 would you not have to disconnect the control tab input rod  
9 at the aft end so that you could feel the bearings and feel  
10 the control tab on the elevator and try to identify a frozen  
11 bearing or something of that nature? A bolt that's over  
  
12 torqued and that maybe the clevis is being squeezed?

13 A In the case of the push rod, I would go with the  
14 easiest access, which was the forward end where the  
  
15 inspection panel is for the adjustment and open that up  
16 before I went to all those screws on that faring.

17 Q So you wouldn't go to the aft bolt?

18 A No, I would not.

19 Q So you wouldn't check and see if perhaps the  
20 bolt's over torqued, the clevis is squeezed at the rod end  
21 itself?

22           A     Only if that -- if the isolation of the forward  
23     end relieved the problem, then I would obviously go further  
24     aft.

25           Q     Okay.    When you're changing -- when you're

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1 actually changing or swapping back the elevator dampers, we  
2 know they're at the inboard hinge point and sometimes they  
3 can be a challenge to remove. And the procedure tells you  
4 that if you do need to -- if you do need to gain more

5 elevator travel in order to extract the damper from its  
6 installation point, to disconnect the torque tube inside of  
7 the tail of the aircraft. Is it possible that a lesser  
8 experienced A&P mechanic could discern the torque tube  
9 inside the tail cone of the aircraft as the control tab push  
10 rod? He may disconnect that believing he's doing the right  
11 thing?

12 A There's a big difference between a push rod and a  
13 torque tube, and --

14 Q They essentially do the same thing.

15 A They do essentially the same thing, but there's a  
16 difference in their literal function. You're asking me my  
17 opinion, I don't think --

18 Q It wouldn't be possible for a younger guy out on

19 the line --

20 A Or a possibility, there's a possibility, but I  
21 think that the level of mechanics -- the majority of

22 mechanics that I'm aware of out there, and particularly the  
23 people that were working on this, they had more than enough  
24 experience to make a distinction between a torque tube and a  
25 push rod and knew where the location was.

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1           Q     Okay.  Earlier today, Mr. Hoffstetter, while  
2     being questioned by Mr. McGill, was speaking to some  
3     alarming maintenance that was taking place in Dayton that  
4     was observed by some people that we had on site supplying  
  
5     manpower.  And he was describing cotter pins, jam nuts, and  
6     aileron rigging procedures and such that turned out to not  
7     be per the maintenance manual or per what you would believe  
8     would be an acceptable maintenance practice.

9                     And I guess what I'm getting at is if something  
10    like that could take place on the line, why would it be --  
11    in your opinion, what do you think that it would be

12    outrageous that a younger mechanic could confuse the torque  
13    tube inside of the tail of the aircraft with the input rod  
14    in the control panel?  We're already hearing of examples of  
15    some -- well some stories that are kind of hard to believe,  
16    kind of a challenge to think that that goes on on the flight  
17    line.

18           A     There's a question?

19           Q     Yes, the question would be do you think that it  
20    would be, based on things that you've heard here, with  
21    maintenance practices that have taken place on the line in



22 Dayton, that somebody could perhaps mistake the maintenance  
23 manual and go to that rod, believing they were doing the  
24 right thing?

25 A Anything is possible. Based on my experience and

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1 my knowledge, no.

2 MR. PORTER: That's all I have. Thanks a lot.

3 CHAIRMAN GOGLIA: Okay, thank you. Federal

4 Aviation Administration.

5 MR. STREETER: We have no questions, sir.

6 CHAIRMAN GOGLIA: Okay, to the Board of Inquiry,

7 Mr. DeLisi?

8 DIRECT EXAMINATION

9 BY MR. DeLISI:

10 Q Thank you. Mr. Robbins, are you an engineer?

11 A No, sir.

12 Q Mr. Pudwill frequently, in his testimony, asked  
13 you to share your engineering opinion with him, and you did  
14 so without qualification. Why was that?

15 A For about the last five years, give or take, I've  
16 been intimately involved with many engineering projects from  
17 concept through design, certification, those type of things.

18 I feel I'm capable in some respects to answer questions.

19 Q And for the record, at the time of the accident,  
20 there was no requirement for the director of engineering at

21 Emery to be an engineer.

22 A Not that I'm aware of.

23 Q Thank you. Mr. Robbins, were you the right

24 person to share with us Emery's position that it was not

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1 required to take the faring off when doing the B-9 card  
2 check?

3 A If you're asking whether in the course of the  
4 duties of director of engineering, I would be the one to

5 make the distinction as to does the faring stay on or does  
6 the faring come off, that would not have been my role at  
7 Emery.

8 Q You earlier gave us a presentation, and in the  
9 presentation it stated that it was not required to take that  
10 faring off to do the inspection.

11 A To do the inspection as I've been instructed that  
12 that's the level of the inspection that's called for.

13 Q When you gave us that presentation and you put  
14 that on the record and you shared that with us, what was the  
15 basis for the statement that the faring did not need to come  
16 off?

17 A The basis for that statement was that my  
18 understanding of what I have been told -- and this goes to

19 years at Emery -- that where it says a visual inspection,  
20 it's a visual inspection that requires a flashlight and a  
21 mirror, basically, and that there's no panel removal.

22           Q     When you gave us that presentation, it came  
23 across as a fact that it was not required, and I interpreted  
24 that to be Emery's position that it is not required.  But  
25 perhaps now should there be a qualification to the clarity

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1 with which that presentation was made earlier today?

2 A The presentation that I made, and the comments I  
3 made, are -- I mean they stand as far as I'm concerned.  
4 Whether or not I'm the proper person to make that statement,

5 I -- I can't really answer that.

6 Q Okay, well --

7 A Sorry.

8 Q You did make the statement.

9 A You're asking whether or not I was the proper  
10 person.

11 Q You gave us that presentation --

12 A Yes, I did.

13 Q -- you made that statement.

14 A Yes, I did.

15 Q One final question, if there was a maintenance  
16 problem that was difficult to resolve, is there technical  
17 support available from the Boeing Company for the DC-8?

18 A In some cases.

19 Q When you were with Emery as the director of  
20 engineering, are you aware of times where technical support  
21 from Boeing was requested?

22           A     Yes.

23                   MR. DeLISI:  Thank you.  No further questions.

24                   CHAIRMAN GOGLIA:  Okay, the Chairman does not  
25   have any questions.  So back to the technical panel, is

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1 there anything on wrap up?

2 HEARING OFFICER HILLDRUP: No, sir.

3 CHAIRMAN GOGLIA: Okay, back to the ALPA, any  
4 additional questions? Clarification?

5 REDIRECT EXAMINATION

6 BY MR. GUNTHER:

7 Q Yes, we'd like to do some clarification if we  
8 could. And I realize it's getting late so I really just  
9 have just a couple questions. Mr. Robbins, can you look at  
10 your previous interview, which is Exhibit 17-Y.  
11 A 17-Y.

12 CHAIRMAN GOGLIA: Okay, just hang on a second  
13 while we provide the witness with --

14 THE WITNESS: Okay.

15 BY MR. GUNTHER:

16 Q And if you can turn to page five, line 10.

17 A Yes.

18 Q During the interview, Mr. McGill from NTSB asked

19 you about reliability, and the question that he asked was,  
20 "Talk a little about the -- we keep hearing about how you  
21 keep having repeat writeups." And his question to you is,



22 "How do you track that from a reliability standpoint?"

23 Could you read your answer?

24 A Beginning on line three?

25 Q Line 13 would be the answer to the question he

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1 asked you.

2 A Line 13 starts out with the word "adequate", page  
3 five -- that's on my page five.

4 Q No, if you could find the question --

5 A Okay, is it --

6 Q It starts off at line 11, the question --

7 A Okay, I see it.

8 Q It says, "Talk a little about the -- we keep  
9 hearing about you have repeat writeups. How did you track  
10 that from a reliability standpoint?" And could you read  
11 your answer which begins on line 14?

12 A Sure. "We use the pilot reports to determine if  
13 there is a problem on the aircraft that is repeating itself.  
14 Obviously, it's not being addressed properly or maintenance  
15 has been ineffective in fixing or identifying the problem.  
16 In some cases, particular with aircraft with a lot of  
17 wiring, you have a situation where there's a problem on the  
18 aircraft that only rears its head every so often, and

19 maintenance may or may not be able to find that, depending  
20 on the condition of the aircraft at the time you are looking  
21 at it." Do I continue?

22 Q No, thank you. I have no further questions.

23 CHAIRMAN GOGLIA: The Boeing Company? No

24 questions from Boeing. Tennessee Technical Services?

25 One question. Proceed.

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1 REDIRECT EXAMINATION

2 BY MR. PORTER:

3 Q Earlier, when you were speaking with Kevin  
4 Pudwill, you made a statement that said maintenance would

5 like to provide an aircraft with everything working almost  
6 all the time. And I was just wondering when would you like  
7 to provide an aircraft when everything isn't working?

8 A I think the word almost should have been left  
9 out. That's certainly not the correct statement. Speaking  
10 for myself, I would always like to have a 100 percent  
11 aircraft.

12 Q And when you had the reliability department, when  
13 you were still with Emery, what was the minimum amount of  
14 people you had working for you in the department?

15 A In reliability?

16 Q Yes, sir.

17 A Seven or eight.

18 Q And they were analysts --

19 A Analysts, yes, a whole variety of positions.  
20 Engineers came in through engineering. Reliability did not  
21 have engineers on their staff, it was accomplished within

22 the department. There were analysts and --

23 Q Maintenance planners?

24 A Not planners.

25 Q No planners. Just all data entry type people.

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1           A     No, analysts, one data entry -- one data entry  
2     person.

3           MR. PORTER:   Okay, that's all we have.   Thanks a  
4     lot.

5           CHAIRMAN GOGLIA:   The Boeing Company?   FAA?  
6     Emery Worldwide?   Mr. DeLisi?

7           One question.   When you were employed with Emery,  
8     do you remember a person by the name of Booker?

9           THE WITNESS:   Yes.

10          CHAIRMAN GOGLIA:   Did he work for you?

11          THE WITNESS:   No.

12          CHAIRMAN GOGLIA:   Who did he work for?

13          THE WITNESS:   He reported to the vice president  
14     of technical services.

15          CHAIRMAN GOGLIA:   Okay, thank you.   Mr. Robbins,  
16     you are released as a witness for the proceedings.

17                         (The witness was excused.)

18          CHAIRMAN GOGLIA:   All the other witnesses that

19     I've asked to stay are released.

20                         (The witnesses were excused.)

21          CHAIRMAN GOGLIA:   Does anybody have anything

22 additional they would like to raise to me at this time?  
23 Because I am about to take some action here. And I guess I  
24 will just proceed.

25 Ladies and gentlemen, as Chairman of this

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1 proceedings, one task for me is to help create a complete  
2 record for the use of the full Board in determining  
3 accurately the probable cause, and to make meaningful  
4 recommendations so that we can have a reasonable expectation

5 that we will not have another accident. For the same  
6 reasons -- another accident for the same reasons.

7           It is painful to me, as a maintenance person, to  
8 recognize at this point that I cannot inform my peers on the  
9 Board that I have accomplished that task. I believe at this  
10 point we have been unable to fully develop the record in  
11 this accident. In preparation for this public hearing, we

12 asked the parties to the accident to provide the most  
13 knowledgeable persons to provide the information that we  
14 need to complete the record. Unfortunately, that did not  
15 happen here. The list of areas that still need to be  
16 developed is long. And I do not wish to consume any more  
17 time of those present here today. So I am now required to  
18 recess these hearings so that we can return at a later date

19 in time to continue to develop the record. The parties to  
20 the investigation will be advised when, where and how we  
21 will proceed with developing a complete record.



22                   This hearing is recessed.

23                   (Whereupon, at 8:10 p.m., the hearing in the  
24 above captioned matter was adjourned, to be reconvened at a  
25 future date, time and location to be determined.)

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