

DCA21FA085

OPERATIONAL FACTORS

Attachment 1, Flight Crew Interview Transcripts
October 26, 2022

UNITED STATES OF AMERICA

NATIONAL TRANSPORTATION SAFETY BOARD

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Investigation of: *

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UNITED AIRLINES FLIGHT 328 *

BOEING 777 ENGINE INCIDENT *

NEAR DENVER, COLORADO, *

Accident No.: DCA21LA085

ON FEBRUARY 20, 2021 *

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Interview of: MARK STEPHENSON, Captain
United Airlines

Via telephone

Monday,
February 22, 2021

APPEARANCES:

MARVIN FRANTZ, Operational Factors Investigator
National Transportation Safety Board

BOB AARON, Senior Safety Pilot
The Boeing Company

BOB Mackay
United Airlines

AL BERLINBERG
Air Line Pilots Association, International

TODD GENTRY, Accident Investigator
Federal Aviation Administration

JOHN HANSON, Senior Labor Relations Counsel
Air Line Pilots Association, International
(On behalf of Mr. Stephenson)

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I N T E R V I E W

(4:17 p.m.)

MR. FRANTZ: Okay. Great. Thank you, Mark.

Marvin Frantz, I'm an operational factors investigator with the NTSB. And when we have things where we need to do interviews like this, we typically put together what's called an operational factors group, and we use that group to conduct the interviews. In the group, we try to get experts from either the, from -- well, from the airline and from the manufacturer, and also, we usually get a union rep, if there is a union involved. So we have all of those today.

I have been with the NTSB for about 5 years, but I don't have any Boeing experience at all, so I don't know anything about a 777 other than what I read. But, luckily, everybody else on the group -- we have a lot of experience and a lot of time in the airplane. So that's my expertise there.

But what we want to do -- and I'll have everybody introduce themselves in a minute so you know who you're dealing with -- is we're just trying to get an idea of the event from your point of view. Some of us might have some specific questions. It's all just -- we're just asking you from the best of your recollection, you know, what happened. It's not adversarial. There's no -- nobody is trying to point any fingers at anybody. We just want to learn from the event, and part of learning about this event, in addition to all the technical side, is what went on on the flight

1 deck.

2 So, as part of the interview, we always tell the person we're
3 talking to they're allowed to have a representative. And for the
4 record, if you've chosen a representative to be with you, and it
5 can be anyone of your choosing, you just need to tell us who that
6 would be.

7 MR. STEPHENSON: Okay. Are you asking me if I --

8 MR. FRANTZ: Yes, yes. Go ahead. Just tell us who your
9 chosen representative is.

10 MR. STEPHENSON: Well, it would be John Hanson.

11 MR. FRANTZ: That's okay. That's good. So he can't -- you
12 know, you can converse with him. You can have -- if you want to
13 take time and speak with him privately, you can do that. He just
14 can't answer questions for you, but he can ask for a pause or if
15 you need to consult. None of that is anticipated here, but you
16 have that option.

17 Hopefully this won't take too long. We went a little longer
18 with the FO than I was expecting to with Mike, who did a great
19 job. Told us everything we needed to know. But we'll try to get
20 you out of here in, I don't know, 30, 45 minutes if possible, but
21 we'll see what develops. We don't want to cut you short. If you
22 have things you want to talk about or bring up, you'll have a
23 chance to do that as well.

24 So, before we get started, let me go around and have
25 everybody just introduce themselves and give you a little bit

1 about their background. Start with Bob Aaron from Boeing.

2 MR. AARON: Hi, Mark. Good afternoon. As Marvin said, I am
3 with Boeing now. Prior to that, had about 10 years flying in the
4 U.S. Air Force. After that, 25 years flying along with Northwest
5 and Delta, 11 years with Boeing as a senior safety pilot as well
6 as an accident investigator, and I was actually trained by ALPA as
7 an accident investigator and taught at the school for many years.
8 So a long time association with the airlines, and we appreciate
9 your participation today. Thank you very much.

10 MR. STEPHENSON: Thank you.

11 MR. FRANTZ: Okay.

12 Bob Mackay (ph.).

13 MR. Mackay: Yes. Hi, Mark. Bob Mackay. I'm the 777
14 Captain in San Francisco, 11 years on the triple. I'm also a line
15 check airman on the triple in San Francisco and a quality control
16 check airman as well. So thanks for your participation today.

17 MR. STEPHENSON: Okay. Thank you, Bob.

18 MR. FRANTZ: Thank you, Bob.

19 Al Berlinberg.

20 MR. BERLINBERG: Hi, Mark. Thanks for being here today. My
21 name is Al Berlinberg. I'm also a San Francisco 777 Captain.
22 Been on the airplane about 16, 17 years. I'm also a LCA out there
23 and one of the QC check airmen as well. Also, I am one of the
24 ALPA reps. I'm the FSAP ERC (ph.), been doing that for about two
25 decades, and also, prior to that or along with it at times, one of

1 the FOQA gate keepers for ALPA as well. And, again, thanks for
2 being here today.

3 MR. STEPHENSON: Certainly.

4 MR. FRANTZ: Thanks, Al.

5 Todd Gentry.

6 MR. GENTRY: Hey, Mark. My name is Todd Gentry. I work for
7 the FAA as a senior accident investigator. My background is 14
8 years in the Air Force, and then I flew for United for a couple
9 years and then got furloughed after 9/11. But I do have some
10 Boeing time. Not a lot, not like the rest of the group for sure.
11 But anything you tell me today doesn't go outside of me and my
12 little six group -- six guys in my group, and the only thing we do
13 is look for safety concerns in accidents. We don't do any
14 enforcement actions whatsoever. I'm not even allowed to talk to
15 those kinds of FAA people. So I want you to feel free and open to
16 tell me anything that you think we can do better FAA-wise so that
17 we could, you know, try to alleviate problems like this in the
18 future. That's all.

19 MR. STEPHENSON: Okay.

20 MR. FRANTZ: Okay. Thanks. Thanks, Todd.

21 Okay. Mark, before we get started, do you have any questions
22 about the process today or anything else?

23 MR. STEPHENSON: No, I think I understand it pretty well.

24 MR. FRANTZ: Yeah, it's going to be pretty straightforward.

25 INTERVIEW OF MARK STEPHENSON

1 BY MR. FRANTZ:

2 Q. Let's just kick off with the easy stuff. Can you just give
3 me your full name with any necessary spellings?

4 A. Sure. Mark with a K. Middle name is Allen, A-l-l-e-n. And
5 last name's Stephenson with a p-h, S-t-e-p-h-e-n-s-o-n.

6 Q. Okay. And what's your current position, Mark?

7 A. Boeing 777 Captain, San Francisco.

8 Q. And how long have you been in that position at United?

9 A. Just about a year now.

10 Q. Okay. Prior to that, what did you do at United?

11 A. I was an Airbus 319, 320 for almost 20 years.

12 Q. Okay. And then, prior to that, were you with United prior to
13 that or did you -- what's your background prior --

14 A. Yeah.

15 Q. -- to you joining United?

16 A. Well, I flew different, multiple aircraft. First officer.
17 The first officer 727 -- or, sorry, I was with TWA. 737, DC-10
18 first officer, 767 first officer, and then 37 -- the older 37, 300
19 and 500 model, I was a captain on that for, oh, 5 years or so,
20 4 -- I think about 5 years. And then, on 9/11, I moved over to
21 the Airbus.

22 Q. Okay. Any military background?

23 A. No.

24 Q. How old are you, Mark?

25 A. I just turned 60.

1 Q. Can you -- okay. Just take us back to, you know, shortly
2 after departure Saturday, and just in your own terms, to the best
3 that you can remember events and your actions and Mike's actions,
4 just talk us through the event down to where you stopped on the
5 runway. And then we'll just let you go, and then we'll see if we
6 have any follow-ups after you outline it for us.

7 A. Okay. Well, first of all, the plane was -- departed late. I
8 briefed the flight attendants in the boarding area, and there were
9 reports of moderate turbulence, so I advised them to stay down for
10 the departure. Everything else was pretty normal during the
11 boarding. Pushed back. Did have a little bit of a problem
12 getting the right engine to start, I remember that. We had to
13 fiddle with the start switch, but then after that, it was fine.
14 Taxied down to Runway 2-5. There's a T-procedure. We briefed
15 that. Normal take off. Everything was fine.

16 We were on a ZIMMR 3 (ph.) departure, and we got cleared --
17 at one point, we got cleared direct to ZIMMR. I remember it
18 sounded like Denver, and Mike paused for a second. And then he
19 figured it out, oh, ZIMMR. You could hear that in his voice on
20 the recording. He's like, okay, ZIMMR. So we were direct to
21 ZIMMR, and we got the air traffic control report moderate. I
22 think they said it was 14 to 23 if I remember right. So I told
23 Mike, I think I'm going to slow down a little bit and punch up
24 through this layer, and he agreed that was a good idea. And
25 shortly after that, he said, do you want to use continuous? And I

1 said, yeah, that's a good idea. So he went to the VNAV page, put
2 continuous thrust in.

3 And then -- what happened next? We got a little bump, very
4 minor, and I don't want to speculate, but maybe that was a very
5 minor compressor stall, potentially. But I think we both thought
6 that that was the beginning of the moderate because that's kind of
7 what it felt like. It was a very mild little, you know, shaking.
8 And I think I might have even said something at that point like,
9 well, there it is; there's the beginning of the moderate or
10 something. And it wasn't more than, I don't know, 2 seconds maybe
11 where there was this just tremendous shudder of the aircraft, was
12 very startling, and I think we looked over at each other like,
13 what the heck was that? And the whole airplane was just rattling,
14 of course.

15 And my first thought was, you know, flight control issue,
16 because the airplane did jerk to the right, obviously, pulled to
17 the right. And so I was just -- initially thought, well, maybe
18 this could be a flight control problem. So I disconnected the
19 autopilot using the yoke switch, and as soon as I did that, it
20 pulled even harder to the right. I don't know if I was -- if the
21 TAC was helping me before. I know later on it looked like we had
22 a TAC failure maybe. So it took quite a bit of lift aileron to
23 bring the aircraft left -- or level, actually, at that point. And
24 I leveled at 13,000 feet.

25 And we had just passed through the clouds, and the last thing

1 I'd seen before passing the clouds was the terrain, the Rocky
2 Mountains right there, so I just instantly told Mike, we need to
3 turn back immediately. I said, declare emergency, request a
4 return to Denver. So he did the emergency aircraft, and there was
5 a long, long hesitation. We didn't get any response it seemed
6 like. So I said, do the mayday, mayday, mayday. So he did that,
7 mayday, mayday, mayday, United 328 engine failure, need immediate
8 return. Then they asked us whether a left or right turn. Request
9 for a left turn.

10 And somewhere in there, maybe the beginning of the turn, we
11 got the engine -- let me back up. We got the -- we did get the
12 engine failure prior to the turn. Okay. So we got the engine
13 fail EICAS. Somewhere in the turn, I believe, back to Denver, we
14 got the engine fire. So I was still hand flying. Mike said, you
15 know, why don't you unload it, you know, put the autopilot back
16 on? So I did that, and I asked him to run the check. I said, I
17 have the radio, I'll fly the airplane; run the fire checklist. So
18 he went through that. Secured the engine, the right engine.

19 At that point, somewhere along there, one of the flight
20 attendants called up, and I told him, hey, we're real busy; we'll
21 get right back with you. There was a few other things that popped
22 up on the EICAS that Mike was dealing with, and then at some
23 point, I told Mike to go ahead and check the landing performance
24 data, the non-normal, non-configuration landing data pages. So he
25 went to that. We figured out that, based on the altitude and the

1 weight, we were going to need about just a hair over 4,000 feet
2 required. And that checklist is for landing and performance for
3 go-around. So we had that. So then we dealt -- talked to the
4 flight attendants a bit more. I think the purser asked if he
5 wanted us to prepare the cabin -- or if we wanted him to prepare
6 the cabin.

7 At that point, the aircraft was flying really well. If it
8 wasn't for the vibration, it would have seemed normal. The
9 autopilot was on. It was holding altitude really well. We had a
10 couple of descents they gave us. I think one was down to -- first
11 it was down to 9, then 7, I believe. I used FLCH mode. It worked
12 perfectly. So I was pretty confident the airplane could fly.

13 At that point, I believe there was a litany of other
14 checklists. Like, for instance, if you get an engine fire
15 checklist, you also get an engine failure checklist, which is
16 redundant. And Mike did that checklist. He just punched right
17 through it. There was also the overweight landing checklist,
18 which only has one item on it, and it's redundant. It's the
19 ground prox flap override switch to override, and that's something
20 you've already done on the fire checklist. And the engine fail
21 checklist, it's the same thing; you've already secured the engine.
22 The TAC checklist, I'm not sure about that one. I don't want to
23 really speculate on what happened there.

24 So, at that point, we were abeam -- just about abeam, final
25 approach fix for 2-6, and our approach offered us any runway. 2-6

1 was the closest one. It was 12,000 feet. And, you know, with the
2 landing data that we had, I knew that we had roughly three times
3 the amount of runway we needed. But that's with an engine
4 cowling, so there was just no way to predict the exact
5 performance, but I figured 12,000 feet would be fine. We had
6 favorable winds, so -- they gave us the ILS. Disconnected the
7 autopilot probably 800 feet or so, and it flew fine. It was
8 perfect, just like you expect a Boeing to be. And Flaps 20
9 landing.

10 And they told us to stop straight ahead, which we did, and
11 fire trucks were right there. They did a great job. Came over,
12 sprayed the left engine down, and that was about it. We were
13 coordinating with the flight attendants, made a lot of PAs at that
14 point. Fire department, they worked on that engine for a good 40,
15 50 minutes trying to get the heat down. It was smoldering. And I
16 think, at one point, they said there was a possibility, if they
17 couldn't get the smoldering to stop, that we were going to have
18 evacuate the airplane there on the runway, but that didn't happen
19 thankfully. And then we got tugged in. They brought the
20 airstairs over. Pretty much it.

21 Q. Okay. Thanks. Prior to the event -- the booming, the
22 noises, and then the engine failure -- anything, any indications
23 at all of any concerns or issues or problems with that engine?

24 A. The only thing at all was the start, okay. So we -- the
25 first attempt to start, it didn't do -- zero. You know, Mike, the

1 first officer, starts the engine, he puts the overhead switch to
2 the start position, and then you don't have to wait on an auto
3 start; you just lift the fuel control lever. And it was nothing,
4 and it just -- no reaction, no response. So he took the start
5 switch back to off -- I believe it was back to off, and then back
6 to start, and then it worked.

7 So, once again, I don't want to speculate. I'm not an
8 engineer. That's the start valve. If that had something to do
9 with back pressure in the engine, I don't -- I have no idea. But,
10 after that, it was fine. Never -- no issues whatsoever.

11 Q. Okay, okay.

12 A. Takeoff rolls very nice, very smooth.

13 Q. After the noise, give me, again, how long your sense was
14 before the -- you got an actual fire indication.

15 A. You mean between -- we got an engine fail EICAS first, and
16 that happened pretty quickly. After the initial shuddering of the
17 aircraft, it was probably maybe 4 seconds before we got the right
18 engine fail EICAS. And I want to say we were in the process of
19 declaring an emergency when we got -- and maybe even turned back
20 to Denver when we got the engine fire. That might not be super
21 accurate because, at that point, I was hand flying and just really
22 concentrating on getting turned back around. So yeah, I -- off
23 the top of my head, it had to have been, between the engine fail
24 and the engine fire, between 5 and 10 seconds maybe.

25 Q. Oh, okay. And so was it the first officer who accomplished

1 the fire -- the engine fire items?

2 A. Yes. So I told Mike, I have the aircraft, I'll handle the
3 radio; you run the checklist. So we went to the -- it was the --
4 I call it the engine fire checklist. That's the most inclusive.
5 And he ran that. And, of course, you back each other up when
6 you're shutting off components, you know, so -- it's part of the
7 checklist, confirm.

8 Q. Sure. Did anything -- did you notice any changes at all
9 after you had fired both the bottles?

10 A. No.

11 Q. No.

12 A. No, and that was -- that's another point I should probably
13 bring up. We had that fire indication all the way around, all the
14 way around until short final, and it was actually one of my
15 biggest concerns. I had no idea that the cowling was gone. And,
16 of course, without the cowling, there is no way to contain the
17 fire retardant, so we were just blowing it out into the
18 atmosphere, so --

19 Q. Yeah, um-hum.

20 A. That was my biggest concern. Couldn't get the fire out, used
21 both bottles. I was trying to expedite down.

22 Q. Did you -- at any point during the flight, did you have any
23 or did you talk to anybody in the cabin and get any reports about
24 what they were seeing from back there?

25 A. We talked to them multiple times. Never once got an eye

1 witness report, no. Never heard anything. We didn't have any
2 visual on what was going on with the engine or the fuselage or
3 anything like that.

4 Q. Okay.

5 MR. FRANTZ: All right. I'm going to pause here, I think,
6 and we'll see if anybody else has any questions. We'll start with
7 Bob Aaron from Boeing.

8 Bob, do you have any questions?

9 MR. AARON: I do, Mark.

10 BY MR. AARON:

11 Q. Can I -- if it's okay, can we go back to the lack of engine
12 start? That's a little troubling to me right out of the chute.
13 Did you notice any history in the maintenance log book that this
14 engine had had starting issues prior, anything that stuck out in
15 your mind that we have a misbehaving creature out there in the
16 right wing?

17 A. No. No, there were no open items, obviously, and there
18 was -- I didn't notice anything in the history of a starting
19 problem.

20 Q. Okay. And in the auto start where you said nothing happened,
21 so we got no rotation at all? Is that what you were --

22 A. Right.

23 Q. Just wanted to be clear. So it was zero rotation after going
24 to start.

25 A. None of the engine instruments indicated anything.

1 Q. Got it.

2 MR. AARON: Okay. Thank you for the clarification, and
3 that's all I've got.

4 MR. FRANTZ: Okay. Thanks, Bob.

5 Bob Mackay from United, questions?

6 MR. Mackay: Yeah, thanks. Thank you, Marvin.

7 BY MR. Mackay:

8 Q. Mark, just a couple quick questions. Do you remember if -- I
9 don't have any paperwork. Do you have any -- was this an
10 intermix? Did they have an intermix on the airplane or not? I
11 didn't recall that from Mike.

12 A. You know, that's a really good question, and I -- for some
13 reason, my flight plan, I had it loaded in my iPad, and it's gone,
14 and I don't know what happened to it. But I don't recall it being
15 intermix, but I might be confusing it with another airplane
16 because --

17 Q. Yeah, we've seen a lot of those in recent times, so --

18 A. I actually -- that was one of my first thoughts, and I tried
19 to go back to the flight plan to look at that, but --

20 Q. The iPad gremlins got it.

21 A. Right.

22 Q. Do you recall, after engine start, did it drop in the climb
23 two like we see on the A/B model a lot?

24 A. No. Mike checked that. The -- yeah, no. No, no. He
25 checked that taxiing out.

1 Q. All right. Last question, I can only assume that the timing
2 of the event, you guys -- did you get a chance to send an ACARS
3 message to dispatch, or was there any communication with the
4 company you were coming back?

5 A. Yes, yes. When we were downwind, Mike communicated to the
6 company that we were returning. They already knew. I guess
7 they'd been listening. They were aware of it. They were very
8 good. Operations, they were right on top of things.

9 Q. Good.

10 MR. Mackay: All right. I think that's all I've got. So,
11 Mark, thanks for the professional debrief. Appreciate it.

12 MR. STEPHENSON: Certainly.

13 MR. FRANZ: Thanks, Al -- or, sorry --

14 MR. Mackay: Bob.

15 MR. FRANTZ: -- Bob, yeah.

16 Al Berlinberg, do you have any questions?

17 MR. BERLINGER: Yes.

18 BY MR. BERLINBERG:

19 Q. Mark, hi.

20 A. Hi.

21 Q. Going out of -- coming out of Denver, were you -- do you
22 remember, on the ZIMMR, was it a climb via clearance, or did they
23 kind of take you off the climb via while you were still climbing
24 up below 10 before the event?

25 A. I believe -- okay, so the ZIMMR has a top altitude of

1 two-three-zero, and I believe there's an intermittent level-off at
2 10,000. And I believe they -- before we reached 10,000, they
3 cleared us to climb via, ZIMMR 3. So I reached up, and I pushed
4 the altitude button on the MCP, and it deleted at 10,000 foot, and
5 we just climbed. So, to answer your question, it would have been
6 climb via, or a direct climb up to two-three, basically.

7 Q. Okay. And that's what I was kind of getting at. So the
8 airplane -- because a lot of times, on the ZIMMR and many of the -
9 - at least the westbound departures, and the eastbounds for that
10 matter, we're step climbing on the way up. So the engines are up,
11 the engines are down, because we're out climbing those altitudes,
12 right, and we have to level because they're all below altitudes
13 for the --

14 A. Right.

15 Q. -- first two or three on. So do you remember --

16 A. Right. I understand your question. So I think it was -- we
17 would have been -- it would have been a continuous climb up had we
18 made it up to --

19 Q. Okay.

20 A. -- two-three.

21 Q. Okay. Yeah, that's what I was getting at. So, up to the
22 time of the event, you know, the tickle with the turbulence, the
23 first nudge, the bigger bang, and -- did you feel a lateral input
24 with either the first or the second bang or thump on the first
25 one?

1 A. Yes. The first one was very easily mistaken for turbulence.
2 The second one, not only being, you know, much higher intensity,
3 but there was much more of a lateral component to it. And it
4 really -- and, with the addition of the aircraft jerking to the
5 right, it really gave me the initial impression it was more of a
6 flight control problem. That's why I turned the autopilot off,
7 initially. And then, within seconds, we had the engine fail.

8 Q. Okay. And did it feel -- to use the acronym, the TAC acronym
9 again, did it feel like, after the second bang and the flight
10 control issue, that maybe the TAC had come off? Did you feel like
11 you had rudder input coming in to maintain lateral control?

12 A. That's something I think that is a possibility. You know,
13 both when we had the initial event, the plane jerked to the right
14 -- I'm not sure how quickly the TAC can respond, but there was
15 definitely a right yaw effect. And then, when I turned the
16 autopilot off, once again, very dramatic. I had to fit in quite a
17 bit of left aileron to level the wings at that point.

18 Q. Okay. And just prior to the turn, after the communication
19 with ATC and once the airplane got spun around, any GPWS (ph.)
20 warnings? Did it tickle anything with the GPWS before you made
21 the turnaround?

22 A. No. Never.

23 Q. Okay. And, at that point, did you lose a lot of energy? Did
24 you have to start a descent before you got the actual descent
25 clearance from ATC?

1 A. We got the descent clearance almost immediately once we
2 turned around. I don't remember that being too much of a problem.
3 Of course, I'd already slowed, remember? I had just slowed to
4 280, and the airplane was probably still decelerating. So we
5 still may have had some of the kinetic energy there. But, you
6 know, that definitely would have been a factor had we made it to
7 ZIMMR, so --

8 Q. Um-hum. Okay.

9 A. I mean, that's what my initial concern was, you know. We'd
10 just punched into the clouds, and my last forward visual was the
11 Rocky Mountains. So it was -- that was my first priority, getting
12 turned back around there.

13 Q. Right. And when you kind of turned the airplane around and
14 started heading back to Denver, you continued to fly, and Mike was
15 working the checklists. Any --

16 A. Correct, correct.

17 Q. Was there any discussion going on there whether, you know,
18 you should switch roles, or what was going through your mind at
19 that point?

20 A. No, I thought Mike and I had very good communication. I made
21 it very clear, I'll fly the airplane and I'll handle the radio,
22 and he got right at the checklist. He's been on the plane a bit
23 longer than me. So yeah, we went through the checklist. I
24 thought we coordinated really well with confirming everything
25 before we cut it off. So I don't think -- yeah, I thought that

1 part of the flight was very -- was done very well.

2 Q. Okay. And then, coming back towards the airport, as he's
3 running through all the checklists, through your mind, you've got
4 ATC and the airplane. You put the autopilot back on at some
5 point, I understand, and you probably had a level segment at that
6 point. Was -- and I heard you say that the airplane was flying
7 really well. Was that during the time the autopilot was on as
8 well and after you turned the autopilot off on final?

9 A. Yes, both the hand flying segment and with the autopilot on,
10 the plane flew perfectly to the point I would say that, if it
11 wasn't for the, you know, the vibration, extreme vibration, it
12 would seem totally normal. So we got an immediate descent to
13 9,000 feet. I got the autopilot back on, at some point, and I
14 used -- we had, I think, two more step-downs downwind and
15 (indiscernible) vector for the approach. I used FLCH mode, and it
16 was -- operated flawlessly. It was perfectly smooth, other than
17 the vibration, of course.

18 Q. Okay. You touched on this, and I just want to highlight it a
19 little bit more. As far as distraction goes and, you know, the
20 call from the back, I'll get back with you on the timeline to
21 that. How did you feel distractions from the back interfered or
22 may have interfered with what you were trying to do up front?

23 A. I think the purser, his name is Tim, I thought -- I think he
24 was very much in the loop. I thought he did an excellent job, and
25 he actually said, I know you guys are busy; I just wanted to let

1 you know -- I just wanted to touch base with you guys, see if I
2 can -- you know, we can coordinate anything. So I would say that
3 it wasn't a problem at all.

4 Q. Okay.

5 A. You know, I don't think -- yeah, I mean, I have nothing but
6 praise for flight attendants.

7 Q. And maybe I'm asking more from the constant dinging from
8 every station. Were you able to clear that out? That is
9 problematic on the airplane. It can be at times, especially in
10 high workloads.

11 A. Sure.

12 Q. As far as deleting, did that become an issue or interfere
13 with your communication with Mark -- with Mike?

14 A. No. You know, aviate, navigate, communicate. I was flying
15 the airplane, at that point, in downwind. You know, I had the
16 autopilot on, so -- you know, and I was working with him a little
17 bit. We were talking, running checklists, communicating with the
18 flight attendants. I don't feel like I was overwhelmed at any
19 point. I don't feel like there's any particular aspect of
20 anything, any of the communications or, you know, any of the
21 aircraft advisories or anything like that that caused a problem.

22 Q. Okay.

23 MR. BERLINBERG: That's all I had, Marvin. Thank you.

24 MR. FRANTZ: Thanks, Al.

25 Todd Gentry, any questions?

1 MR. GENTRY: I don't. I think Al and Bob covered everything.

2 Thank you.

3 MR. FRANTZ: Okay. Thanks, Todd.

4 Mark, just a couple of follow-ups.

5 BY MR. FRANTZ:

6 Q. Did I understand -- did you make a decision to defer the
7 overweight landing checklist? Was that -- is that correct?

8 A. It really wasn't a decision to defer it because there's only
9 one item on it.

10 Q. Okay.

11 A. And that comes up -- like what I said, when you run these
12 checklists -- like what I said, you get the fire checklist, you're
13 also going to get the engine failure checklist to secure the
14 engine; you've already done that. You're going to get the
15 overweight landing checklist. There's one item on it: flap
16 override switch, because you have to land with a different flap
17 setting, Flaps 20 instead of Flaps 25 or 30. So it's already been
18 done. So it did come up. We did look at it. So I don't know if
19 I would say I made a decision to defer it. It was -- it's done.
20 And --

21 Q. Okay. Yeah, got it. And I don't know United's procedures
22 for landing performance calculations, but how did you determine
23 your ref speed and how did you determine that the runway was
24 sufficient? I mean, assuming it hadn't been Denver, if it would
25 have been a different runway, a shorter runway, how -- what did

1 you do to assure yourself that, even at your landing weight, you
2 had plenty of runway?

3 A. Okay. Well, United has this very convenient -- if you go to
4 the index page of our flight manual, it comes with a very handy
5 table, and all you have to do is touch. So I have to come down --
6 we're in a 200-A model, which is the white one, so I touch that,
7 and it instantly brings up table 5-50-23, and that's the 200-A
8 Pratt Whitney 4077. And then there's a left-hand column. You
9 just come right straight down. Engine shut down, left/right,
10 Flaps 20. Braking action, dry. Come across your landing weight,
11 480,000 pounds. That gives you 3,690 feet, and on top of that,
12 you have to add 1,000 -- or knots per 1,000 feet, so I multiply 5
13 times 70. And there's also a couple other factors, but they
14 actually would have been to our favor. So a real quick ballpark,
15 I knew it was 4,000 feet, and I knew that 2-6 -- Runway 2-6 is
16 12,000 feet. So, even with the degraded engine and the increased
17 drag without the engine cowling, I knew I had three times the
18 landing distance that I needed. If that answers your question.

19 Q. Yeah, it does. How much -- so how much -- do you remember
20 what your ref speed was?

21 A. Definitely higher than normal. I would be guessing, one --
22 and I don't even want to speculate. But it was -- we set the ref
23 bug, you know, when we went to the final flap setting, and it was
24 probably, I don't know, 5 to 7 knots above --

25 Q. Okay.

- 1 A. -- a normal Flaps 20 landing.
- 2 Q. Was there any change in the thrust just before the incident?
- 3 A. Well, yes, because -- and this may be another contributing
4 factor -- when I -- I don't know if we talked about this, but when
5 we were advised of the turbulence, I told Mike, I said, I think
6 I'll slow to 280 and punch through this layer. And he suggested
7 going to continuous thrust, which he did on the VNAV page. And so
8 that would have boosted the thrust, yes. And that was probably a
9 few seconds or 5 seconds before the incident.
- 10 Q. Do you have any recollection about how -- what the change
11 was? From what to what on N1 or whatever?
- 12 A. No, no, no.
- 13 Q. No? Okay.
- 14 A. No, no. I wouldn't -- I would just be guessing.
- 15 Q. All right. But, and the auto throttles accomplished that
16 change, right? Is that correct?
- 17 A. Yes. Oh, yeah. Uh-huh.
- 18 Q. Yeah. Okay. And so, at the time, did you associate that
19 change with --
- 20 A. No.
- 21 Q. -- with the -- or with the engine failure?
- 22 A. No. No, not at all.
- 23 Q. Okay.
- 24 MR. FRANTZ: Okay. I think that's all I have. Let me just
25 go around one more time, see if anybody has any follow ups.

1 Bob Aaron?

2 MR. AARON: No, sir. No follow-ups.

3 Thank you, Mark.

4 MR. STEPHENSON: Thank you.

5 MR. FRANTZ: Thanks, Bob.

6 Bob Mackay?

7 MR. Mackay: No, Marvin. No follow-ups.

8 Mark, thanks for your professional debrief. Appreciate it.

9 MR. STEPHENSON: Of course. Thank you.

10 MR. FRANTZ: Al Berlinberg?

11 MR. BERLINBERG: No, nothing from me.

12 Thanks, Mark. Appreciate it.

13 MR. FRANTZ: Okay.

14 Todd?

15 MR. GENTRY: No, nothing from me either. Thank you.

16 MR. FRANTZ: Okay.

17 Mark, I think we're going to wrap it up. Always want to give
18 the -- our interviewee a chance to see if they want to add
19 anything. So I just want to ask you, anything that you want to
20 add, or is there anything that we didn't ask you about that you
21 think we should have?

22 MR. STEPHENSON: No. As far as, you know, what could have
23 been done better, I think, without further information about
24 exactly what happened and exactly what the failure was about, I
25 wouldn't really be able to speculate. But overall, I think that I

1 feel pretty good about how everything was handled, from the
2 cockpit to the cabin to the emergency personnel and then the
3 company's handling of it. I thought everybody did a really fine
4 job. So can't really comment on anything that I would change or
5 improve on.

6 MR. FRANTZ: Well, yeah, that was my next question. I think
7 you answered it, but I need to ask it anyway. So anything that --
8 from this experience that you, if you were suddenly the CEO of
9 Boeing or United, any changes that you think could be made in
10 either the airplane or in procedures or training that would come
11 out of your experience here?

12 MR. STEPHENSON: No. And, as a matter of fact, when this
13 happened, it was -- I just remember thinking how well that my
14 simulator training had prepared me for it. That's actually --
15 that was, yeah, one of my first thoughts. Other than the extreme
16 vibration that there's no way that the simulator can copy that,
17 the preparation I had, I thought it really, really was excellent.
18 You know, the way they have us run checklists, the way they have
19 us coordinate really, really worked well, I thought.

20 MR. FRANTZ: Okay. Good. All right, Mark. Thanks. Thanks
21 for your time today. We appreciate your debrief. It's been very
22 helpful to us, and congratulations on a successful outcome.

23 MR. STEPHENSON: Thank you. Appreciate it.

24 MR. FRANTZ: So that's all we need from you and John. I just
25 want to ask -- or tell the group members, the interviewees, that

1 this recording will go out for transcription in the next day or
2 so. Typically, it takes 10-plus days to get the transcript back.
3 So, once I get the transcript back, I'll send it out to all the
4 group members, and you guys can review it. Compare it to your
5 notes, see if there's anything that needs to be corrected.
6 Typically, with the transcripts, they're very good. They might
7 miss acronyms or something, but for the most part, everything is
8 captured well. But that's why we give you a chance to review it.
9 So that'll probably be my next contact with the rest of the groups
10 members is when I send out the transcript for your review.

11 So, before we go, anybody, any final questions or comments?
12 If not, thanks, all. Thanks, everyone, for your attention today,
13 and thanks for helping get this together on short notice. And
14 that's all I've got, so, so long.

15 MR. STEPHENSON: All right. Thank you.

16 U/M: Thanks.

17 U/M: Thanks, Marvin. Thanks, everybody.

18 (Whereupon, the interview was concluded.)
19
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21
22
23
24
25

CERTIFICATE

This is to certify that the attached proceeding before the

NATIONAL TRANSPORTATION SAFETY BOARD

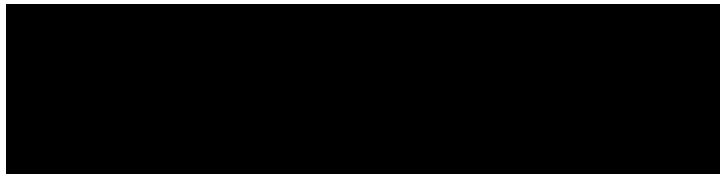
IN THE MATTER OF: UNITED AIRLINES FLIGHT 328
BOEING 777 ENGINE INCIDENT
NEAR DENVER, COLORADO,
ON FEBRUARY 20, 2021
Interview of Mark Stephenson

ACCIDENT NO.: DCA21LA085

PLACE: Via telephone

DATE: February 22, 2021

was held according to the record, and that this is the original,
complete, true and accurate transcript which has been transcribed
to the best of my skill and ability.



Transcriber

UNITED STATES OF AMERICA

NATIONAL TRANSPORTATION SAFETY BOARD

* * * * *

Investigation of: *

*

UNITED AIRLINES FLIGHT 328 *

BOEING 777 ENGINE INCIDENT *

NEAR DENVER, COLORADO, *

Accident No.: DCA21LA085

ON FEBRUARY 20, 2021 *

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Interview of: MICHAEL DeVORE, First Officer
United Airlines

Via telephone

Monday,
February 22, 2021

APPEARANCES:

MARVIN FRANTZ, Operational Factors Investigator
National Transportation Safety Board

BOB AARON, Senior Safety Pilot
The Boeing Company

BOB Mackay
United Airlines

AL BERLINBERG
Air Line Pilots Association, International

TODD GENTRY, Accident Investigator
Federal Aviation Administration

JOHN HANSON, Senior Labor Relations Counsel
Air Line Pilots Association, International
(On behalf of Mr. DeVore)

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I N T E R V I E W

(3:00 p.m.)

1
2
3 MR. FRANTZ: We're recording now. Thanks. Good morning --
4 good afternoon, everybody. Thanks for gathering.

5 Mike, what we're going to do -- what we want to do is just
6 get a quick take on your view of this event. We'll -- there are
7 several people here, and I'll have them introduce themselves in
8 just a moment. But what we want to do is -- well, once we get
9 started, we'll go around the room, the virtual room here. There's
10 going to be four of us, I believe, and we'll, you know, we'll see
11 what questions they have.

12 It's not sworn testimony. It's just -- all we're asking you
13 to do is recall things to the best of your recollection, and all
14 we're trying to do is figure out the sequence of events and what
15 happened. So, you know, we don't want you to feel like there's
16 any accusations or -- there's nothing here that we're looking for.
17 Everything seems to be straightforward. We just need a record,
18 you know, we do need to have the pilot's record of this. And we
19 find that, in some cases, a pilot's statement, where we ask the
20 pilots to just write up something and submit it, is sufficient,
21 but when we have a, you know, a high visibility and potentially a
22 dangerous incident like this, we think an interview with the
23 pilots is a better way to go than just a statement. So that's why
24 we're doing this.

25 We can't offer you -- obviously, because this is an NTSB

1 investigation, we can't say you have any immunity or any
2 confidentiality for anything you say. But as I described, you
3 know, the transcript of the recording -- sorry, the transcript of
4 the interview will become part of the public record but not the
5 recording. It'll be destroyed.

6 We'll take -- we'll just ask you questions one at a time, and
7 once one person is done, we'll pass it on to the next person. If
8 anybody has any follow-ups after the first round, we may go around
9 again. I don't anticipate this taking more than 30 to 45 minutes,
10 but, you know, I don't want to tie anybody to that. You know,
11 everybody can ask as few or little -- as few questions as they
12 like, and you can expound or not to whatever degree you're
13 comfortable in answering or giving us some insight as to what
14 happened here.

15 Before we get started, let me just go over -- oh, and I need
16 to have you confirm on the record that you are aware that you can
17 have counsel, or you could have someone representing you, anyone.
18 Has to be someone of your choice. You can pick whoever you want,
19 but if you've chosen someone, and I understand you have, I just
20 need you to tell us who it is.

21 MR. DeVORE: Yes. I've selected my counsel, John Hanson of
22 ALPA legal.

23 MR. FRANTZ: Okay. Great. Thanks.

24 All right. I'm going to go ask the people on the line to
25 just briefly introduce themselves and tell you their background so

1 you'll kind of know who we're talking about. I'll start with
2 myself.

3 MR. DeVORE: Okay.

4 MR. FRANTZ: I've been an operational factors investigator
5 with the NTSB for only about 5 years. I have an airline
6 background, but only a regional airline, so I don't have any
7 Boeing type ratings, but I've been involved in a couple
8 investigations involving Boeing aircraft. But no actual
9 experience in the airplane and -- but, luckily, everyone else on
10 the line is vastly experienced.

11 So let's start, if you could just introduce yourself, Bob
12 Aaron from Boeing.

13 MR. AARON: Hi, Mike. Good afternoon. It is Bob Aaron from
14 Boeing. My history is I had 10 years with the U.S. Air Force and
15 after that, 25 years with Northwest and Delta flying basically
16 everything they had, and 10½ years with Boeing. And I've been an
17 active investigator since 1991, first with ALPA and now with
18 Boeing, and I'm currently the senior safety pilot at Boeing.

19 MR. FRANTZ: Okay. Thanks, Bob.

20 Bob Mackay (ph.) from United.

21 MR. Mackay: Yeah. Good afternoon, Mike. Bob Mackay, I'm
22 the Boeing 777 Captain, San Francisco, line check airman, San
23 Francisco. Also, quality control check airman. I've been on the
24 777 for 11 years, checked out in 2009. So that's it for me.

25 MR. FRANTZ: Okay. Thanks, Bob.

1 Al Berlinberg from ALPA.

2 MR. BERLINBERG: Hi, Mike. Al Berlinberg, 777 Captain from
3 San Francisco. LCA also on the aircraft and one of the QCLCAs as
4 well. I've been on the airplane about 16, 17 years. Also, I work
5 with ALPA as one of the FSAP ERC (ph.) members. Been doing that
6 for about 23-ish years, and also a FOQA gatekeeper at one time.
7 And that's my background.

8 MR. FRANTZ: All right. Thank you, Al.

9 And Todd Gentry from the FAA.

10 MR. GENTRY: Hey, Mike. My name's Todd Gentry from the FAA.
11 I'm an accident investigator, so anything you tell me doesn't go
12 anywhere but in the accident file. I can't do any enforcement
13 actions, so I don't want you to feel like anything you say is
14 going to be in any way held against you. It's strictly not that
15 way at all.

16 My background is 14 years in the Air Force, and then I flew
17 for United for 2 years until 9/11 happened, and then I got
18 furloughed, and I decided I wasn't going to go back to United and
19 started my own company. So I flew a lot of airplanes, 135s, bush
20 pilot, everything since then.

21 MR. FRANTZ: Okay.

22 MR. GENTRY: And that's pretty much it.

23 MR. FRANTZ: Okay. Thanks, Todd. Yeah. Todd brought up a
24 point that I forgot to mention, Mike, is that we get experts from
25 -- you know, we try to get somebody from the union and somebody

1 from the airline and somebody from the manufacturer, and then we
2 always have -- on these investigations, we always have the FAA as
3 a party, but it's the accident investigation side of the FAA; it's
4 not the other side. So whatever -- you know, it's not the side of
5 the FAA that you would need to be -- have any concern about any
6 issues. Not that we anticipate any issues, but just so you know.
7 Todd is strictly on the accident side, and he works for the NTSB,
8 essentially, at least for the purposes of the interview and stuff.
9 He's just helping us out. Okay, so --

10 MR. GENTRY: Can you get me a raise, Marvin?

11 MR. FRANTZ: Yes. Sure. Just go ahead and submit that and
12 we'll -- I'll make sure that goes through, Todd.

13 So, Mike, before we get started, do you or John have any
14 questions of me or the group?

15 MR. DeVORE: I actually do have -- you know, my one question,
16 I guess, of the group is to find out, I guess -- I know there was
17 an impact below the wing root on the aircraft. And I was curious
18 to find out, I guess, is if this is being classified as an
19 incident or as an accident, you know, at least at this point.
20 Just curiosity more than anything.

21 MR. FRANTZ: The -- yeah. This is Marvin from the NTSB. The
22 last I've heard, and I have -- you know, things are sort of
23 dynamic, I guess, today. But, as far as I can tell, it's an
24 incident. All I've heard so far is it's an incident because the
25 damage outside the engine was -- the damage to the fuselage or

1 other portions was, I guess, not significant enough to up it to an
2 accident. And when -- so when it's just one engine --

3 MR. DeVORE: I see.

4 MR. FRANTZ: -- I believe -- so, and I think that's the
5 status right now is it's still classified as an incident. Yes.

6 MR. DeVORE: I see, I see.

7 MR. FRANTZ: Okay. Anything else?

8 MR. DeVORE: That was the question that I had.

9 MR. FRANTZ: Okay.

10 MR. DeVORE: No. I think that's it.

11 MR. FRANTZ: Okay. I'll kick off the questioning, Mike.

12 INTERVIEW OF MIKE DeVORE

13 BY MR. FRANTZ:

14 Q. And let me just start off with the easy stuff. Can you just
15 give me your full name with any necessary spellings for the record
16 please?

17 A. Okay. Name is Michael, and the middle name is Allen,
18 A-l-l-e-n, and the last name is DeVore. It's Delta-Echo, then
19 it's capital V-o-r-e. Delta-Echo-Victor-Oscar-Romeo-Echo.

20 Q. Okay. And what's your current position, Mike?

21 A. I'm a 777 First Officer based in San Francisco.

22 Q. Okay. How long have you been at United?

23 A. Let's see. I've been here -- it'll be -- you know, right
24 now, 22 years. Just clicked over 22.

25 Q. Okay. Did you have any airline experience before United?

1 A. Yes. I was at Comair Airlines based in Cincinnati, Ohio, and
2 I was there for just over 5 years.

3 Q. Okay. All right. Any military background?

4 A. No. You know, civilian.

5 Q. Right. Okay. What's your -- just your best estimate, I
6 don't need exact numbers -- total flying time?

7 A. Let's see. Estimate, I'm right at -- as a part of United,
8 they did not -- on the way they split it out, they actually didn't
9 include 737-200 numbers, and I was in that aircraft. And I
10 believe I had, I believe, you know, right around 1,200 hours in
11 the plane. It's been some time since I looked at it, but roughly,
12 total time, around 18,000 hours.

13 Q. Okay. And then do you have -- did you say 1,200 -- or do you
14 have numbers for the 777 hours?

15 A. 777, yes. 777 numbers, I have -- I believe I have right at
16 4,200 hours.

17 Q. Okay. Great. How old are you, Mike?

18 A. Well, yesterday was my birthday, so I just turned 54.

19 Q. Okay. All right. Just take a few minutes now and take
20 yourself back to, you know, shortly after the departure on that
21 flight. And just kind of, in your own words, in your own
22 narration, with time and sequence and what events you remember,
23 just kind of talk me through what occurred and what your responses
24 were. And take me down to basically when you stopped on the
25 runway if you could.

1 A. Okay. Let's see. We took off. Aircraft was late coming in
2 from Chicago, so we were, you know, a little behind schedule to
3 say it that way. But we departed off of Runway 2-5 in Denver, and
4 we were on the ZIMMR 2 (ph.) departure. Hand off to approach
5 control was fine. Flew the airplane. I was the pilot monitoring;
6 the captain was the pilot flying. Departure, you know, cleaned up
7 -- we cleaned the aircraft up on schedule, ran the after takeoff
8 checklist, and then we were flying out.

9 You know, there was a little bit of turbulence. The captain
10 had pre-briefed to the flight attendants to remain seated until we
11 called them. They had discussed that on the ground. We ended up
12 getting turned over to the center controller climbing out of
13 10,000 feet. The center controller had cleared us direct ZIMMR
14 intersection to climb and maintain flight level two-three-zero.
15 Noteworthy was that he had said that, I believe, it was out of
16 14,000 feet on up to -- it was, I don't know, 22-, 23,000 feet
17 that we could experience some moderate turbulence.

18 At that time, the captain, he had engaged the autopilot just
19 below 10,000 feet, maybe 85-, 9,000 feet, I want to say. At that
20 time, the captain, with the report of the turbulence, he initiated
21 -- he said that, you know, with the turbulence, he was going to
22 slow the airplane because it had a programmed climb speed in there
23 that was, I want to say it was in the low 300s. And, you know,
24 about that time, we were given the climb and everything. I, at
25 that point, I want to say we were probably about 10,500, maybe

1 11,000 feet, and I asked Mark, the captain, I had said, well, you
2 know, with the turbulence, do we want to go to continuous thrusts
3 to minimize the time in the turbulence? To which he said yes.
4 And I selected -- on the performance page, I selected continuous
5 on the engines.

6 I noted about this time we entered the clouds. Both engines
7 came up symmetrically, so I was watching as the power's advancing
8 and came up to continuous. And I would say a short time later, it
9 was, it probably was -- it wasn't very long at all. I want to say
10 maybe 5 seconds, maybe 7 seconds. We felt something. You know,
11 we felt a bang or a boom. Just kind of you felt it a little bit
12 in your seat. It was not -- it wasn't large. We assumed -- we
13 looked at each other, and we thought, oh, that's the turbulence,
14 was the initial reaction.

15 And I looked at the captain and -- followed by, we had a
16 second -- it's one thing that I -- I'm not sure if it actually
17 happened in between the two large events, but I noticed right
18 after that first event, I think, something popped up on the EICAS,
19 and I'm not sure if it was either after that second large boom or
20 between the two. I noticed that -- I saw I got an EICAS message
21 that said something about PMG, you know, about the permanent
22 magnet generators, but I'm not sure. It flashed so fast and was
23 gone that I didn't honestly -- yeah, it just was there for a split
24 second, and it was gone and we had a clean screen.

25 Then we had the second event which was larger, and it felt --

1 there was a lateral movement on it. It felt right to left. And
2 at that time, the captain said, I think we have a flight control
3 issue. And he disconnected the autopilot, because he said, you
4 know, I think we have a flight control issue. Where I think I saw
5 the altitude being around 13,300 approximately, and at that point,
6 you know, my thought was all about the high terrain to the west
7 here in Denver. We're climbing right at this high terrain. And,
8 you know, the captain, we looked at each other; he said, we got to
9 -- he said -- I believe he said, we got to turn around. I'm like,
10 yeah, we've got to turn around.

11 And I, you know, queried ATC. The initial call, I dropped
12 out the first digit. I believe I said, United 28, and we were in
13 -- you know, basically, I thought we were -- at this point, I knew
14 that the plane -- we were -- there was quite a bit of -- you know,
15 the plane was being jostled. I mean, at that point, I kind of
16 thought we had like a compressor stall or -- you know, but the
17 airplane was shuddering. And it was actually -- it was quite
18 violent. And so I queried ATC, and I said, we've got to turn.
19 And I told Mark that, you know, we need to turn. We need to turn
20 now.

21 And I finally -- he suggested and it was good, he said, you
22 know, say mayday. So I said, mayday, United 328 and, you know, we
23 need to turn. And so there was some -- there was two pauses with
24 air traffic control. And we looked at each other, Mark and I. He
25 said, they don't -- you know, I'm not sure if -- they're not

1 hearing you for some reason. And so I pressed and I was more
2 distinct and spoke louder and made sure that my hand didn't come
3 off the microphone switch on the glare shield and told them, and I
4 said, we need to turn, we need to turn now. And at that time,
5 then air traffic control came right back and said, you know, right
6 or left turn. And I said left turn. And so we began to -- we
7 turned the airplane. We were basically in a 180.

8 And at that time, I told -- you know, I advocated to Mark, I
9 said, why don't you put the autopilot on to, you know, take the
10 workload off us. And he said, well, it's not -- I thought he said
11 something about well, yeah, it's the engine, not flight control.
12 And so he re-initiated, engaged the autopilot. We turned around
13 and were given a descent to 9,000 feet. At that point in time, I
14 asked Mark, I said, do you want to fly or you want me to fly? And
15 he said, I'll fly.

16 And so I began, you know, running the -- it was the engine
17 fire checklist. There's a little -- you know, I believe that the
18 first thing we got, we had -- you know, the engine fire is what
19 came up, is what I saw. So I began to run the engine fire
20 checklist. As we initiated the descent, you know, we had talked
21 about it when he -- when I said do you want to fly and said -- so
22 he took the jet and the radios, and then I was going to run the
23 electronic checklist. We initiated -- I made the initial call on
24 the descent down to 9,000 feet.

25 Then at that point, I came out of it and was dealing with the

1 checklist at this time. We popped out VFR out of the bottom of
2 the clouds, and I continued to run the checklist, following
3 further procedure. Mark confirmed that I had the right controls
4 so we didn't have issues with, you know, maybe some form -- you
5 know, getting bilateral transfer in there or something like that
6 on the right to left part. Ran through the checklist and, you
7 know, fired the fire bottles. And it seemed like -- you know, the
8 expectation, of course, in my experience, I'd never seen one in a
9 real aircraft. You know, it seemed like that everything, of
10 course, takes a long time, and I'm watching the counters count
11 down.

12 Completed the checklist, and then, about this time, you know,
13 we were in a left downwind. I could see -- out of my periphery, I
14 kind of saw -- you know, knowing Denver somewhat, the layout, you
15 know, I saw that we were south of the airport. And I said, I'm
16 going to call the company. So I flipped over on radio two, called
17 the ops frequency and said that, you know, we lost an engine and
18 that we were returning to Denver. And they said that they --
19 yeah, that they had heard it. I then flipped over and I made a PA
20 to the passengers and told them that we had experienced an engine
21 failure and we'd be returning to Denver. And it was pretty brief.
22 That was about all I said.

23 At that time, then I came back with Mark and we were in a
24 downwind. There was some discussion -- I guess, let me back up a
25 little bit. Initially, when I said we have an engine failure, air

1 traffic control said, do you want 7? Do you want Runway 7?
2 Which, you know, it would be a pretty quick, pretty quick
3 turnaround. Mark and I had a little discussion, just backing up a
4 little bit, and I said, well, you know, we've got some stuff to
5 do, some checklists. And he's like, yeah, we've got some
6 checklists. That'd be a -- you know, that was -- seemed like that
7 would be a little bit, little early, I guess. We had some things
8 to get, you know, squared away. And so, then at that point in
9 time -- you know, that was one of the last things that I had said
10 to air traffic control. Mark was talking, and I heard air traffic
11 control talking, and he said, you know, fuel remaining, souls on
12 board. You know, kind of the standard protocol. And he was
13 offering up various runways.

14 And so I'll bring it back forward again now to where, after I
15 made the comment to talk to the passengers that, you know, that
16 Mark and I talked with each other and, you know, the -- at that
17 point in time, there is a -- you know, we were at a point where
18 we're starting to look at, you know, think about the performance,
19 the runways and that sort of thing. And basically, we came up --
20 I knew -- you know, we both realized that it's like, well, you
21 know, there's -- this thing talks about, in running through the
22 checklist, it talks about dumping or no dumping or that sort of
23 thing.

24 And the reality is both of us knowing that, hey, we have --
25 we're looking at a fire light, you know, on the right fire handle.

1 It doesn't make sense to dump fuel, from a safety standpoint as
2 well as, you know, just practically with the amount of our weight
3 -- our overweight situation was basically, in my opinion, you
4 know, the least one of our worries. You know, in this aircraft,
5 the difference of 20,000 pounds was the WAG number I came up with.
6 I mean, you're talking, you know, 2 knots or less. So we, you
7 know, we discussed that briefly. He had already installed Denver
8 as the returning airport, as well as he had selected the Runway
9 2-6 in the FMC, I believe.

10 The fire light, I want to say we were probably on extended
11 downwind, possibly just beginning to turn to base, and the fire
12 light extinguished. And then we received another electronic
13 checklist that came up that said engine fail. At that point in
14 time, you know, it's -- I mean, most of the items that are on
15 there are all on the, you know, the engine fire. They're fairly
16 similar, but I ran through those items again, cleared that
17 checklist. We were on the base.

18 There were three checklists that actually, when I cleared out
19 the engine failure checklist, that came up. And I don't remember
20 the sequence of the checklists, I just remember the -- you know,
21 seeing them. One was overweight landing. The second that I saw
22 was fuel imbalance. So those two, basically, to me, we knew, you
23 know, we have a situation. The fuel imbalance isn't because of a
24 fuel leak or anything like that. We've experienced engine loss,
25 power loss, and everything. That's what triggered the fuel

1 imbalance. The overweight was obvious. And the third that came
2 up was -- you know, and the exact -- I think it was TAC fault or
3 TAC -- it was amber, and I believe it said TAC fault, to which I
4 knew that that was obviously as a result of, you know, some of the
5 problems that were going on with the right engine.

6 We went ahead -- at that point in time, Mark basically made
7 it a brief, you know, he said plan on Visual 2-6, Flaps 20. And
8 there wasn't much of -- you know, we'd flown with each other. We
9 had -- that was actually our third leg together. I've never flown
10 with Mark before, so I don't -- other than -- this was my first
11 flight under -- as a part of his crew.

12 At that point in time, I believe, Mark went ahead and said
13 that we could take a closer in turn rather than extending further
14 out, and we -- you know, he was flying, still flying the airplane
15 on the autopilot, initiated the turn. I went ahead and extended
16 the runway -- we were probably on -- I don't know, it was more
17 than 10 miles. Let's say 10, more than 10, maybe 15 miles turning
18 final, and I told him that I was going to -- I made one last call.
19 I'd worked with a purser a fair amount; his name was Tim. I said,
20 Tim, you know, just letting you know, we're going to be on the
21 ground in probably about 4 minutes. Anticipate a normal approach
22 and landing. I do not anticipate that, at this point in time,
23 unless they saw something in the back, that the Fire Rescue --
24 Fire Rescue is standing by, expecting a normal approach and
25 landing. And he said okay.

1 And then I came back, and then we -- you know, Mark started
2 slowing the airplane, and we configured the airplane, and I ran
3 the landing checklist. Tower said that they wanted us to stop on
4 the runway. We stopped. Normal approach and landing. Mark did a
5 really good job with it. Speed control was good, you know,
6 stability on how the airplane was handling. By the time we had
7 actually slowed the airplane down on the base for -- you know,
8 like we were on our base, it seemed like that some of the yaw and
9 some of the -- you know, basically, it's caused it to drag or, you
10 know, what was going on with the airplane, it was a lot more
11 stable by the time we got on to base. And then, by the time we
12 were on final, it seemed like we were -- there wasn't much
13 shuddering going on with the aircraft. Landed, rolled out. Tower
14 controller says -- told us to -- well, we rolled out; tower
15 control said, stop straight on the runway, below 80 knots. I gave
16 the remain seated, remain seated call. Stopped on the runway.

17 Fire rescue came up. I was communicating with the Fire
18 Rescue. Mark took the radio with the tower. I believe at that
19 time was -- you know, we were pretty busy up until then. Mark
20 gave the souls on board and fuel remaining on the runway. He was
21 talking to tower. I was talking to the Fire Rescue guys, and they
22 commanded -- they said, turn off -- you know, obviously, shut off
23 the other engine. Fire trucks came up to the airplane. There was
24 a -- let's see, fire -- they basically initiated -- starting
25 initiating fire agents into the right engine right away. And

1 there also was another -- I believe it might have been their ops
2 control vehicle or whatever, but you could see a guy that was --
3 he was in the vehicle in the right seat, but he was, I guess,
4 assessing the temperature for how hot it was in the engine.

5 Let's see. We -- at that time, I left the flaps down. You
6 know, we talked about it. I said, I'm not going to -- obviously,
7 we're not going to deplane out. There's a lot of -- there's
8 people around and that sort of thing, so we didn't do anything in
9 regards to, you know, running a checklist at that point in time,
10 with the exception, I believe I put the transponder to traffic or
11 -- yeah, I put the transponder to standby, I believe. And so we
12 sat there, and they hosed down the engine, and that took, you
13 know, a period of time. Seemed like we were probably on the
14 runway working with those guys for about 45 minutes.

15 I think there was -- at one point in time, when I was talking
16 to the Fire Rescue, I know Mark had talked to the back, and I'm
17 not sure which flight attendant. I don't know if he got the
18 purser or if he had talked to one of the other flight attendants.
19 Oh, that actually was -- or no, it was -- and this is just a jump.
20 You can probably, you know, put (indiscernible). But there was --
21 you know, we had gotten numerous, of course, calls between when
22 the event happened, with the turn, as well as coming in. And the
23 purser had called a few times, and we didn't answer the call. And
24 then I believe there was someone that -- there was another call
25 that was in the queue, and I know that the captain had talked

1 about, you know, that he was having trouble or that he had tried
2 to call, and I don't know if there was a handset off, but I had
3 actually reset the -- there was a couple, and I don't remember
4 which positions they were in, queued from the flight attendants
5 calling. And so I reset that at some point in time in the
6 downwind.

7 We discussed evacuating on the -- you know, just evacuating
8 on the runway. But, you know, at that point in time, we had Fire
9 Rescue all around the aircraft. The fire handle was out, as well
10 as, you know, I didn't see any billowing smoke. We didn't see
11 anything from that regard. And the -- I believe that I -- you
12 know, Mark had talked to someone in the back, and I thought they
13 said that they're shooting down the -- they're spraying the
14 engine. But, you know, and I heard that out of, you know,
15 basically out of the corner of my ear.

16 Let's see. There was -- at one point in time, they'd
17 probably been spraying us down for maybe, it's just a guess, maybe
18 20 minutes, 25 minutes. And the Fire Rescue said that, you know,
19 said we're not there yet, but we may have to evacuate the
20 aircraft. And, you know, we looked at each other and everything
21 like that and we basically talked about it. It's like, at that
22 point in time, I could just see there was like one or two buses
23 off in the distance and, you know, they had two other trucks full
24 of fluid ready to dispense it. And we just discussed the fact of
25 to evacuate, put the people out, be standing beside the airplane

1 with, you know, basically with these guys spraying it down or --
2 you know, and I said, if you guys are able to keep hosing it down
3 and keep the temperature down, and he said yeah, the temperature
4 keeps rising, and then we'll spray it and it goes down. But he
5 said, you know, he said there was -- there's no fire, you know, no
6 active fire. It was heat related more than anything. And he
7 said, we're not there yet, but, you know, kind of be ready.

8 So the captain had called the back and told -- he had
9 actually gotten the girl at one right, I believe, and said there's
10 a possibility we may have to evacuate. And then they hung up.
11 And then shortly thereafter, the purser called forward, and then
12 Mark had relayed that message, and they said that they were ready
13 either way that it went. Finally, the Fire Rescue, they were
14 comfortable with the situation and got, I guess, the heat out of
15 the engine core. They said that -- at this time, there were a
16 bunch of buses, EMS people ready in case that became necessary.
17 They had also made quite a bit of inquiry if anybody -- if
18 everybody was okay in the plane, to which I said yes.

19 The super tug I could see was ready, and they said that they
20 would be releasing it to United to hook up and tow us in pretty
21 soon. I had gotten out the tow-in checklist in ECL. Basically,
22 the super tug came up and talked to us. Maintenance was allowed
23 to go around the engine and, you know, they had taken some
24 pictures. And they ended up hooking us up. We ran the tow-in
25 checklist. Captain made the appropriate announcement to the

1 passengers. They towed us to the super bay. Made it to super
2 bay.

3 And then we ended up deplaning per -- you know, COVID, right
4 now, everything is slow and that sort of thing. They deplaned
5 based on rows, and everyone was deplaned off. We had a systems
6 operation control, I guess SOC, representative who was one of our
7 prior captains; Tom Pierra (ph.) I believe was his name. I'm not
8 exactly 100 percent on the last name. But he came up and said,
9 hey, you know, I'm outside, and I'm here to help you with anything
10 you guys need. We basically allowed the passengers to get off
11 first. The passengers all deplaned. We deplaned.

12 And then, actually, I was interested in seeing -- I could
13 just see out the right side. In this aircraft, you can't see the
14 engine, but I just saw, based on the reactions of, A, Fire Rescue,
15 B, the maintenance technicians that there was something
16 significant. Obviously, in the way the airplane was shuddering
17 and everything, I knew there probably was too. So I asked if I
18 could go over and look at it and went over and looked at the
19 aircraft. I had one maintenance tech, she was, actually, I think
20 a -- I believe she was a maintenance supervisor, but she had asked
21 if we had seen any --

22 Q. Hey, Mike?

23 A. -- flights of birds --

24 Q. Hey, Mike?

25 A. -- you know, in and around the airport.

1 Q. Mike?

2 A. I actually did see -- I saw one hawk that was maybe down by
3 the old employee parking lot, south of 2-5. But I didn't see -- I
4 saw -- at no point in time, in the flight, during the flight, did
5 I see birds. Never saw any birds out. I had seen, obviously, on
6 the drive into the airport, I'd seen flocks of Canada geese but
7 did not see anything in that -- any waterfowl at all or birds for
8 that matter. And she asked if we had saw any, and we hadn't.

9 Then we basically left shortly thereafter and, you know, got
10 set up for the toxicology testing and that sort of thing. And I
11 believe that's about -- oh, I did, I guess -- you know, and this
12 is something that -- because, initially, when he asked me if --
13 how -- you know, if we had anybody that was injured, and he had
14 mentioned that one -- you know, that there were pieces that had
15 come off. And he said, yeah, that there was a lot that hit the
16 ground. And I specifically asked, I said, is anybody injured?
17 And I guess that it did give me a certain satisfaction, you know,
18 I mean, with such an event that the injuries on the ground that
19 were possible, but I was happy to hear that there were no injuries
20 on the ground, and there were none with our air return. That's
21 where we're at. That's to my recollection.

22 Q. Okay. Great. Thanks, Mike. Just a couple quick questions,
23 and then we'll see if anybody has any questions. How much time --
24 what's your best estimate of time between the second big noise,
25 boom, and the fire indication coming on in the cockpit?

1 A. Oh, it was -- my estimation -- and that's where I think the
2 timeline -- I basically thought that the fire warning came almost
3 immediately. You know, I thought that the fire -- I thought that
4 I heard the fire warning almost -- you know, basically, almost
5 immediately after. I mean, we were, I want to say probably --
6 boy, after the big boom, 5 seconds, 7 seconds maybe. It seemed
7 like it was fairly quick.

8 Q. Okay. And then how much time between that and when the fire
9 handles got pulled and turned?

10 A. Oh, got fire handle pulled and turned, estimate on that,
11 probably -- oh, it was probably about -- oh, I don't know. It was
12 under a minute, I'll say that.

13 Q. And --

14 A. It was fairly soon. And once we got -- my biggest concern,
15 actually, to be honest with you, was getting the airplane away
16 from the terrain. That was my -- you know, I was really concerned
17 about the terrain and how far west of the airport. And I don't
18 know exactly how -- you know, initially, how far we were. But the
19 initial thing -- and my other concern on it was to get the
20 automation, have the automation help us as best we can. But I
21 want to say probably it was under a minute.

22 Q. Okay. And then you fired both bottles. Is that correct?

23 A. That is correct, yeah. Fired the left bottle first, and then
24 the counter was counting down, and then I went from the left stop
25 to the right stop.

1 Q. Okay. And then the fire light just stayed on the whole
2 flight until, roughly, did you say you were like abeam the airport
3 on the return when it finally went out? Is that right?

4 A. Yeah. We were probably south -- we were southeast of the
5 airport, I think, when the fire -- you know, when the fire light
6 finally went out, it stayed on a long time. It -- and, you know,
7 we were basically on an extended downwind, just turning to base
8 when that finally seemed like that went out. But we still had
9 concerns with it.

10 You know, it seemed like the experience -- I don't -- I've
11 never been through anything like this at all, you know, for real.
12 But it seemed like that the fire light stayed on -- you know, in
13 the simulators, it seems like it goes out a lot quicker, so that
14 may be the training environment. But it stayed illuminated for a
15 lot longer than -- in both of our minds; the captain commented
16 about it, too, said it's still on. You know, and he had said that
17 once or twice, I believe --

18 Q. Okay.

19 A. -- you know, when we were downwind.

20 Q. Okay. Good.

21 A. So --

22 MR. FRANTZ: All right. That's -- I'm going to see if
23 anybody else has any questions. So let me start going around.

24 Bob Aaron from Boeing, do you have any questions for Mike?

25 MR. AARON: Yeah, just a couple.

1 Mike, how quickly after the event started did the ECL react
2 for the engine fire checklist? Was that pretty much instantaneous
3 with the fire (indiscernible)?

4 MR. DeVORE: Yes, it was. The ECL came on, you know, right
5 away. There was not a significant delay at all in the ECL. And,
6 you know, it just seemed like -- yeah, the ECL functioned, I
7 think, as advertised.

8 MR. AARON: Okay. I appreciate that.

9 And, you know, we were discussing this back in Seattle.
10 Obviously, it was -- the fire was engulfing around the cascade
11 vanes. That may have been the result of -- or, excuse me, the
12 extra heat may have been the result of those, because those
13 cascade vanes are made of graphite, and they will burn furiously
14 once they've started igniting --

15 MR. DeVORE: Oh, wow.

16 MR. AARON: -- been the source of the consternation to the --
17 or (indiscernible) so. So can't confirm that yet, but our engine
18 guys were looking at that over the weekend, saying they're
19 graphite; they're going to burn once they start.

20 MR. DeVORE: I see. Yeah. I wasn't aware of that.

21 MR. AARON: No, to be honest with you, I wasn't either. Not
22 something they usually teach in training. We just don't usually
23 have a need to know, but we were all curious why it was burning as
24 furiously as it was.

25 The other aspect is, even though the fire light went out,

1 there is a possibility -- and hopefully the investigation will
2 show this as well -- that the fire cable, detection cables could
3 have burned out, in which case, doesn't sense a fire anymore.
4 That's getting way ahead of the game at this point, so -- but it
5 is a possibility because we're trying to figure out some of the
6 questions, check that some of the answers to the questions that
7 we're already asking too.

8 So, again, thank you for what you did. Very nice job. And
9 living in Denver and having a son that was out there flying when
10 you guys were overhead, so --

11 (Simultaneous speaking.)

12 MR. FRANTZ: Okay. Thanks.

13 MR. DeVORE: Yeah.

14 MR. FRANTZ: Thanks, Bob.

15 Bob Mackay from United, do you have any questions?

16 MR. Mackay: No, Marvin, I don't.

17 Thank you, Mike. Appreciate your briefing.

18 MR. DeVORE: Thank you, Bob.

19 MR. FRANTZ: Okay. Al from ALPA, any questions?

20 MR. BERLINBERG: Yeah, just a few.

21 BY MR. BERLINBERG:

22 Q. Mike, thank you. Very, very good debrief and detail. Thank
23 you very much. That really helps.

24 A. You're welcome.

25 Q. Just take me back to the beginning a little bit. Did any

1 deadheaders introduce themselves? Were you aware of any company
2 personnel on the cabin side of the door?

3 A. You know, actually, no, we weren't aware of any deadheaders.
4 After we had actually landed -- I did not realize, but after we
5 had landed, there was actually a 777 instructor that was traveling
6 to Honolulu with his wife and then his brother, I believe, and
7 sister-in-law that were in. And that's a great -- that's a good
8 point with -- in terms of, you know, getting other resources
9 involved. I did not really -- we didn't have any deadheaders that
10 I knew, that introduced to us, and I didn't know until we landed.
11 I do believe that the captain and the instructor, actually, had
12 worked some in the training center when he was coming through his
13 training, so they actually did have a rapport with each other.
14 But no.

15 Q. Yeah. And your timeline was pretty short. So I was asking
16 more from our company, ALPA, perspective --

17 A. Oh, got you.

18 Q. -- reinforcing that --

19 A. Yeah.

20 Q. -- if people are coming on board, it doesn't hurt to say hi,
21 and oh, by the way, I am back here.

22 A. Right. And we actually -- we did have that. Not on that
23 flight, but on the previous flight, we had, you know, had several
24 people introduce themselves.

25 Q. Okay. Going back to the pre-flighting phase, the turbulence,

1 I guess the captain made the call to dispatch, I assume. And was
2 that discussed and you guys discussed it with (indiscernible)?

3 A. With us, we actually -- he and I had discussed it, yeah, at
4 the -- you know, when we were in briefing. You know, we briefed
5 -- actually, at the time, I had actually gone home for my layover
6 and come back. The captain had come from a hotel. And he and I
7 had discussed the turbulence that was expected, you know, and we
8 did a group brief with the flight attendants.

9 Q. Okay.

10 A. You know --

11 (Simultaneous speaking.)

12 Q. Thank you. That was another question I had.

13 A. -- in the boarding area. Um-hum.

14 Q. Okay. Were you familiar on the paperwork and -- given the
15 event of 3 years ago, were you familiar with the inspection that
16 recently came into play at United that was a CF item? I don't
17 know if it was on this jet, in terms of was it inspected or not.
18 Were you familiar with that CF item at all for the fan blade
19 inspection?

20 A. I do know that with the prior incidents that have happened
21 that there was a fan inspection, but I'm not aware if the
22 inspection was done on this aircraft. No, I'm not.

23 Q. Okay. And your walk-around, do you generally -- in 4,000
24 hours on the airplane, do you generally -- you know, some of our A
25 models have some damage in a lot of places in that fiber glass

1 area of the cowl, the acoustical --

2 A. Yes.

3 Q. -- material in the fiber glass.

4 A. Yes.

5 Q. Did you notice anything on this particular engine?

6 A. I didn't notice any, you know, I'll say, excessive -- you
7 know, I did not see a great deal of acoustical material missing.
8 I have seen that with other planes, but I did not see that on this
9 airplane.

10 Q. Okay. And --

11 A. Like in the C model, a lot of the -- you know, and I used to
12 -- because I was Dulles-based for a period of time. A lot of
13 times, the C model, you'd see some of that. You'd see some of --
14 you know, back in the stators, you might see some, you know, just
15 having to do with the salt air more on the C models. But I did
16 not see any in the acoustical material on this one. You know, and
17 I have seen --

18 Q. Okay.

19 A. I know exactly where you'll see -- like you had said, you'll
20 see some chunks that are -- large chunks that are missing.

21 Q. Right. And for the transcript, I mean, that's -- from the FO
22 perspective -- and tell me if you agree with this -- a lot of that
23 is hard for us to see, our view into Sceptre or the maintenance
24 history of the airplane, especially the long term maintenance
25 history of the airplane, it's difficult for us, in our Sabre

1 flight planning system, to actually see the maintenance platform
2 of Sceptre for some of those write-ups. And, you know, some of
3 those repairs may or may not be holding up, and obviously, that's
4 an engineering -- it's a (indiscernible) and an engineering
5 analysis whether they are still good to go, even though they're on
6 long term deferrals.

7 A. Yes.

8 Q. Do you remember if it was an NADP 1 or 2 departure? A noise
9 abatement 1 or 2 off the runway?

10 A. Let's see. I believe it was an NADP 2 departure, and there
11 is a T-procedure off, which was out 6 miles in right turn to
12 zero-one-zero.

13 Q. Okay. And then, in the air, you know, you started getting
14 the usual Denver bumps, and this may or may not have been the
15 usual Denver bumps. What would you classify the turbulence as you
16 started experiencing it around 10,000?

17 A. I would say it was probably, you know, light turbulence
18 initially, started out. And we just had, you know, just the
19 occasional light turbulence. And that's where, initially, it was
20 kind of subtle in that, when we had the first big event, we
21 thought -- you know, we looked at each other and said, well,
22 there's the moderate, you know. Or we were -- I don't know if he
23 said it or if I said it, but I thought it -- you know, when I
24 said, oh, there's the turbulence kind of thing, and -- but we
25 never got into the, I'll say, continuous moderate turbulence that

1 was forecast. I don't think we got into that band of the heavy
2 turbulence. I think what we felt, actually, was off of the
3 engine.

4 Q. Okay.

5 A. And, you know, just the --

6 Q. And --

7 A. -- the drag being caused.

8 Q. And the technique that you used about taking the TMC up to
9 max continuous and trying to get a Vy speed in there to get
10 through it quickly --

11 A. Yes.

12 Q. -- was that -- did you learn that through training or how did
13 that come to you?

14 A. Yeah, you know, through training. And other aircraft I've
15 been on, to include this one, I've used -- and that is -- you
16 know, that was the thought. You know, it seemed like, obviously,
17 with the changed power settings like that -- you know, I have used
18 that technique. I've seen others use the technique as well. So
19 yes. You know, I asked Mark if he thought -- and I know he had
20 spent -- you know, his last week, he had spent a fair amount of
21 time -- and we discussed it, actually, today in that, you know, if
22 you're trying to get a best rate of climb to get through -- either
23 over turbulence or if there's icing events or a thunderstorm event
24 -- you'll try to turn away from a thunderstorm, but sometimes,
25 you'll try to climb, you know, try to get a little higher altitude

1 sooner.

2 Q. Okay. I was just curious, because it is in our OE guide, so
3 it is codified in our training documents.

4 A. Yes.

5 Q. So I was just curious. We -- I was just curious how you
6 remembered it, but it is out there --

7 A. Yes.

8 Q. -- that what we do train on -- the OE.

9 A. Yes --

10 Q. And as far as -- go ahead.

11 A. Oh, no. I was just going to say that I think, Al, that when
12 I was trained that, I believe, you know, it's like on the -- you
13 know, just post 9/11, I've been through a fair number of schools,
14 you know, at United, and I've done that, was trained that, I
15 believe, on a 57 and the Airbus fleet as well, so -- you know.

16 Q. Okay. Did you notice anything with the TAC after the second
17 boom? You indicated, said something, there was a lateral force
18 that was applied. So I'm just wondering, did you happen to notice
19 that the TAC kicked off?

20 A. No, I did not notice that the TAC had kicked off. I just
21 noticed the lateral, and it was -- it honestly, it felt -- from
22 direction wise, it felt from the right side of the aircraft. It
23 wasn't necessarily -- did not feel from the tail of the aircraft,
24 but it felt more -- felt farther forward than that. I mean, but
25 it did not -- you know, that's something -- I didn't feel -- I

1 didn't have my feet on the rudder pedals at all to feel if it --
2 that there was anything, you know, that was related. And I did
3 not see on the overhead honestly.

4 Q. Okay.

5 A. And I --

6 Q. Did the drag feel excessive? I mean, you were kind of making
7 that immediate 180 before the front range with the terrain
8 concerns. And then, coming back to the airport, was it a shallow
9 descent? At any point, when you were in a level segment, did the
10 drag seem inordinately high with having to carry more power than
11 an actual engine failure?

12 A. You know, it did not seem that the -- you know, we had any
13 power issues. And, you know, the controllability, I know that
14 Mark had the autopilot on, but if there was a significant amount
15 of lateral drag on the right side, I wasn't aware of it, you know.
16 I don't think --

17 Q. Okay.

18 A. And Mark did not comment about that.

19 Q. Okay.

20 MR. BERLINBERG: That's all I had, Marvin.

21 MR. FRANTZ: Okay. Thanks, Al.

22 Todd, do you have any questions?

23 MR. GENTRY: Yeah, I just have a couple. Thanks.

24 BY MR. GENTRY:

25 Q. Great job, Mike. Great debrief. I appreciate all your time,

1 and your professionalism surely shows. But I need to make sure --
2 I think my phone cut out. Did you guys run the overweight landing
3 checklist? I didn't hear you say that.

4 A. No, I did not. And we didn't run the overweight landing --

5 Q. Okay.

6 A. -- checklist because of the location, where we were from the
7 standpoint of the distance from the airport and the time to run
8 the checklist. The captain, you know, we had talked about it, and
9 his concern, you know, he said, with having the fire, let's get
10 the airplane on the ground sooner. And we didn't want to take --
11 you know, we had discussed not -- we didn't want to take excessive
12 delay on the -- basically, the overweight landing checklist, from
13 my experience on the plane, you know, the checklist honestly, you
14 know, minimize the sink on the aircraft. You know, touchdown,
15 obviously you want to try to touchdown in the touchdown zone.

16 But at -- we weren't in -- on this aircraft, with the amount
17 of us being overweight, it wasn't significant, and so we just
18 prioritized it lower, to be honest with you. We just did not want
19 to -- you know, I had been pretty busy, and I wanted to get back
20 in the loop because Mark was -- the captain was taking -- you
21 know, getting -- it was kind of getting late in the game. And I
22 had a working knowledge with some of what's on that checklist. So
23 the answer is no, we did not run it.

24 Q. I couldn't agree more. That was the perfect answer. So your
25 configuration for landing was at Flaps 20?

1 A. That is correct. Flaps 20.

2 Q. Okay. And did you -- when you talked about going continuous
3 for the climb to get through the turbulence area there, did you
4 lower the air speed at all, or did you just continue with the
5 programmed air speed, whatever it was?

6 A. No, no. The captain had actually -- the climb speed, I saw
7 what it was in the FMC, and I want to say it was in the low 300s,
8 303, 305, somewhere -- it was in the, you know, low 300s. I'll
9 say that. And so, no. The captain actually put a slower climb
10 speed in the FMC. He didn't actually -- you know, he did it via
11 the FMC.

12 Q. Okay. But it wasn't the computed 305 or whatever? It was
13 something different.

14 A. No. He slowed down. Yeah, he slowed the aircraft -- I'm
15 sorry. Go ahead.

16 Q. Okay. He was trying to get closer to Vy or whatever?

17 A. Yeah.

18 Q. I'm just trying to nail down, you know, kind of the
19 parameters to look for for issues in the future. You know, that's
20 what I'm trying to do.

21 A. Okay. Oh, sure, sure.

22 Q. So do you remember what speed he programmed by chance?

23 A. I did not -- I didn't see the -- I did not see the number. I
24 did not see the --

25 Q. Okay.

1 A. -- specific speed he put in.

2 Q. That's perfect. Great job, Mike. Thank you.

3 MR. GENTRY: That's all I've got.

4 MR. DeVORE: Thank you.

5 MR. FRANTZ: Okay. Thanks, Todd.

6 Okay. That's everybody. I've got just a couple quick
7 follow-ups, Mike, and then we can wrap this up, I think.

8 BY MR. FRANTZ:

9 Q. Prior to the event, anything at all that you recall, any
10 indications of any concerns or problems or anything with that
11 engine?

12 A. You know, the -- no concerns that really -- you know, on the
13 engine itself, per se. I mean, we basically, you know, pushed
14 back, and they had us -- you know, it was kind of a normal push
15 back with exception of, you know, the A models, the As and Bs, you
16 know, I started the engine -- because we were under push, I
17 started them one at a time. But no other -- you know, no new --
18 no indications on the plane on taxi out. No indications, you
19 know, any parameters that we had that were outside, excessive.

20 Q. Okay. You mentioned TAC fault, and I heard somebody else
21 talk about TAC. For a non-777 guy, can you tell me what that is?

22 A. Thrust asymmetry compensator. And what it does, it's a
23 computer that goes ahead and it will input rudder inputs if it
24 senses, you know, an engine failure.

25 Q. Got it.

1 A. And other airplanes don't have it.

2 Q. Okay. Good. Did the -- I don't remember if you said or not,
3 but when the second big boom occurred and the main issue kind of
4 began, did the autopilot kick off or did it stay on?

5 A. No. When the second big boom, the captain disconnected the
6 autopilot.

7 Q. Okay.

8 A. And he said -- he commanded and announced that he was
9 disconnecting because --

10 Q. Yeah.

11 A. -- initially, he --

12 Q. Okay.

13 A. You know, initially, he thought that there was a flight
14 control issue.

15 Q. And then ECL, I just want to confirm, that's electronic
16 checklist?

17 A. That is correct.

18 Q. Okay. Last question is did you guys, anytime during the
19 emergency, did you get any reports from the cabin about what
20 anybody saw looking out the window at the engine? Did you have
21 any idea what was going on out there?

22 A. Yes, that's a good point. I do -- you know, it's -- I was
23 running the checklist, the electronic checklist, but I know that
24 the captain had spoken to the purser in the back. And I'm not
25 sure exactly the dialog. You know, I mean, I didn't hear the

1 dialog. I was running the checklist, so I didn't actually hear
2 the dialog. But I did hear him talk with someone in the back, and
3 it wasn't until -- basically, when we got on the ground was when,
4 you know, basically had the more significant conversation with the
5 cabin in regards to what they saw, you know. The purser actually
6 did, and I'm not sure what the exact dialog that they had, you
7 know. We were in the downwind, and I'm not sure what, you know,
8 what dialog he had.

9 Q. Okay, okay. That's fine.

10 MR. FRANTZ: I think that's all I have. Let me just see if
11 anybody else has any more follow ups.

12 Bob Aaron, Boeing, do you have any further questions?

13 MR. AARON: No, sir. No further questions.

14 MR. FRANTZ: Okay.

15 Bob Mackay?

16 MR. Mackay: No.

17 Mike, appreciate the professional debrief. Thank you very
18 much.

19 MR. DeVORE: Oh, thank you very much.

20 MR. FRANTZ: Al Berlinberg?

21 MR. BERLINBERG: Yes, sir. Just for Todd. Our -- what we
22 set -- what I think Mike was speaking of with the climb speed that
23 was in the FMC was cost index driven at that point, and then when
24 the captain opened the window. When we set something less, what
25 we have in our documentation, anyway -- and it is an OE guide;

1 it's not in the flight manual -- but it is 300 knots to try to
2 obtain a Vy speed closest to -- matches most of the models that
3 we're flying within the various weight ranges. So it's 300 knots
4 .84 for the speed side, and then the max continuous on the thrust
5 management computer.

6 MR. FRANTZ: Okay. Thanks.

7 MR. DeVORE: Thank you, Al. Thank you for clarifying that.

8 MR. BERLINBERG: That's all I have, Marvin.

9 MR. FRANTZ: Thank you, Al.

10 Todd, any follow ups?

11 MR. GENTRY: No, I don't.

12 Thanks, Al. I appreciate the info. Normally, we try to hit
13 280 or 300 depending on the airframe we were flying, but I do
14 appreciate that, Al. Thank you very much.

15 And great job, Mike. Thank you for your time.

16 MR. DeVORE: Thank you very much, guys.

17 MR. FRANTZ: Okay. Mike, let me just -- we always wants to
18 wrap it up by asking you if you have anything to add or if there's
19 anything that you think we should have asked you about that we
20 didn't.

21 MR. DeVORE: No, I don't think so. I mean, I think it's been
22 thorough, you know. It's kind of an event that, you know, you --
23 fortunately, you don't -- you know, between the captain and I, he
24 has -- I have 22 at the airline; I believe he had 31 or 32. The
25 airplanes, to be honest with you, are extremely reliable and

1 dependable. The maintenance, I've never felt -- in my whole
2 career at United, I've been very happy with the maintenance side
3 of the house, and to be honest with you, it's -- I've been very
4 comfortable in that regard. And the training has been very -- has
5 been good at United. I mean, so I really don't have anything
6 else.

7 MR. FRANTZ: Yeah, well, I guess that -- okay. That answers
8 my last questions, but I'll ask them anyway. If you were king for
9 a day, is there anything about the design of the airplane or
10 United's procedures or United's training that you think could be
11 improved, based on your experience with this event?

12 MR. DeVORE: Based on my experience with the event, no. No,
13 I don't have something else I would suggest.

14 MR. FRANTZ: Okay. All right. Great. Well, that's it,
15 Mike. We really appreciate your time today. Great, great
16 briefing. I think we got all the information we needed, so thank
17 you.

18 And for John, John, if we could take like a 10-minute break
19 and then if you could have the captain call in. I'm just going to
20 stay on this line, but let's take 10 minutes, and then we can pick
21 up the captain at about 4:20 Eastern Time. Does that sound good
22 to you?

23 MR. HANSON That sounds just fine, and I asked about those
24 very same acronyms earlier today.

25 (Laughter.)

1 MR. FRANTZ: Great. Okay. Thanks.

2 MR. HANSON: I will let the captain know to join us in about
3 10 minutes. Thanks very much.

4 MR. FRANTZ: Okay. All right.

5 Thanks again, Mike.

6 MR. DeVORE: Okay.

7 MR. FRANTZ: And everybody else, we'll talk to you in about
8 10 minutes.

9 MR. DeVORE: Okay. Thanks. Thanks, guys, and thanks for all
10 you guys do. It's good to have good people and, you know, to try
11 to make it -- I was very thankful to have everybody safe on the
12 ground. I mean, you can control things in the cockpit and your
13 plane and that sort of thing to a certain level, but what happens
14 out there on the ground -- so thanks, guys.

15 U/M: Thank you, Mike. Bye-bye.

16 MR. DeVORE: You bet. Thanks, guys. Bye-bye.

17 (Whereupon, the interview was concluded.)
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CERTIFICATE

This is to certify that the attached proceeding before the

NATIONAL TRANSPORTATION SAFETY BOARD

IN THE MATTER OF: UNITED AIRLINES FLIGHT 328
BOEING 777 ENGINE INCIDENT
NEAR DENVER, COLORADO,
ON FEBRUARY 20, 2021
Interview of Michael DeVore

ACCIDENT NO.: DCA21LA085

PLACE: Via telephone

DATE: February 22, 2021

was held according to the record, and that this is the original,
complete, true and accurate transcript which has been transcribed
to the best of my skill and ability.



Transcriber