

UNITED STATES OF AMERICA

NATIONAL TRANSPORTATION SAFETY BOARD

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Investigation of: *

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ACCIDENT INVOLVING EUROCOPTER *

DEUTSCHLAND AT THE PURDUE *

UNIVERSITY AIRPORT IN * Accident No.: CEN24LA128

WEST LAFAYETTE, INDIANA *

ON MARCH 6, 2024 *

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Interview of: CHAD MESSMORE, Shop Manager/Heavy Maintenance
Metro Aviation

via videoconference

Wednesday,
April 3, 2024

APPEARANCES:

JOSH LINDBERG, Senior Aviation Accident Investigator
National Transportation Safety Board

CHICH SHIN, Aviation Engineering Investigator
National Transportation Safety Board

JOSH WADE, Aviation Safety Inspector-GAM
Federal Aviation Administration

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I N T E R V I E W

(8:59 a.m.)

MR. LINDBERG: The recording is started. The date is April 3rd, 2024, time is 8:59 a.m. Central time. My name is Josh Lindberg with the National Transportation Safety Board, investigator-in-charge for this investigation. With me today is Chich Shin, helicopter engineer with the NTSB, and Josh Wade, FAA inspector-in-charge.

This interview is of Chad Messmore of Metro Aviation. The purpose of the interview is to learn about your recollection regarding the maintenance work performed on the BK117 November 191 Lima Lima and your job as a maintainer at Metro Aviation.

Please be advised of the following: you are allowed one representative of your choosing during this interview, but they cannot answer questions for you. Are you declining representation at this time?

MR. MESSMORE: That is correct, I decline.

MR. LINDBERG: Okay. The other thing, NTSB investigations are non-punitive, we're strictly focused on figuring out the facts of this accident and gaining that information for our investigation to hopefully prevent reoccurrence. This virtual interview is being conducted with video capability, but only the audio is being recorded for transcription, a copy of that transcription will be provided to you once it's completed for final review and then that will be placed in the public docket for

1 this investigation. Do you have any questions for us before we
2 begin?

3 MR. MESSMORE: I do not.

4 MR. LINDBERG: Great. I'll turn it over to Chich Shin to
5 begin with questions now.

6 INTERVIEW OF CHAD MESSMORE

7 BY MR. SHIN:

8 Q. Good morning. Again, we just want to get an understanding of
9 your experience, we'll get -- we'll talk about your background and
10 the work that was done on March 6th for the tail rotor controls
11 and the discrepancy with the pedal feedback. Again, this is just
12 more to get an understanding of what's happened and things that we
13 couldn't tease out, essentially, from the statements that were
14 received from Metro Aviation, from the mechanics who worked on the
15 helicopter that day.

16 Can you tell us your certifications you have, professional
17 certifications, and when you received them about?

18 A. Yeah, I received my A&P license in the late summer of '99, so
19 that's when I got my A&P. I actually in front of me don't have
20 it, but I can -- I think my IA is, I believe, seven years now that
21 I have my IA and I've worked with Metro Aviation almost 13 years
22 now with a one-year break in the middle of that.

23 Q. Okay. Before Metro Aviation did you work at any other
24 operators or any of the helicopter --

25 A. Yes.

1 Q. -- companies?

2 A. The same program, the LifeLine Group, but with the company
3 Omniflight, I was there before they were sold to Air Methods.

4 Q. Okay. And when they were sold, is that when you moved over
5 to Metro or --

6 A. Yes, correct. Yeah, the vendor, LifeLine, went to Metro and
7 I transitioned with them from Omni to Metro.

8 Q. Okay. And what's your work experience in helicopters, in
9 general?

10 A. Out of A&P school, there in the area of the United shutdown,
11 laid off a lot of mechanics, so I went into the Marine Corps with
12 an A&P and worked on CH-53 helicopters, I was attached to them for
13 nearly my four years of working. Then I was transitioned over to
14 the DA-60 line where I flew with the president and worked to
15 maintain the presidential group, HMX-1. And that was -- really,
16 after that was the end of my helicopter career.

17 I then went to a company called ATAC, Airborne Tactical
18 Advantage Company, where I worked on F-21 Kfir fighters and did
19 that for almost two years before I moved back to Indiana and
20 worked at Harper Beechcraft, I think now that's Textron, but it
21 was Harper Beechcraft back then. I worked there for about two
22 years before I was picked up by Omniflight and from there that's
23 about the extent of my A&P right there.

24 Q. Okay. And at Omniflight, did you work on BK117s or other
25 models?

1 A. Yes, correct. It was BK117-A3s and we had one C1 model, but
2 they were all BKs.

3 Q. And Metro Aviation, same thing, only BKs or other airframes,
4 as well?

5 A. Just mainly BKs. Yeah.

6 Q. Okay.

7 A. That's all I ever worked with them.

8 Q. And what's your typical work schedule like currently?

9 A. Currently, Monday through Friday. I work at the downtown
10 heliport in Indianapolis, that's roughly between 7:30 to 4:00,
11 4:30 every day Monday through Friday, and then I do do some base
12 coverage as there's -- you know, people call in or can't make
13 their schedule, I'll go fill in at different bases to assist, but
14 that's just, you know, maybe three or four times a year.

15 Q. Okay. And what's your current position, title, and
16 responsibilities?

17 A. Currently, I'm the shop manager for the heavy maintenance
18 hangar in Indianapolis.

19 Q. And who's your direct supervisor, who do you directly report
20 to?

21 A. Larry LaForce is the lead technician of that program and
22 Larry's my direct, you know, superior over me.

23 Q. And how many mechanics work under you or how many do you
24 supervise?

25 A. Mainly four, sometimes there's a fifth one if we have a new

1 person coming in, but I mainly have four mechanics that are
2 attached to myself.

3 Q. And do you provide mentorship to any of the mechanics?

4 A. Yes, out of -- one of them, the avionics tech, Marty or
5 Martin Eisenhower, we've worked together since Hawker Beechcraft,
6 so I don't really mentor him much, he probably mentors me more for
7 avionics needs and stuff, but the other three are pretty young
8 mechanics, so I end up mentoring them.

9 Q. And to the best of your recollection, was your work schedule
10 the week of -- that had March 6th in it, about normal or was there
11 a difference in your work schedule then?

12 A. No. No difference that week or the week -- yeah. I think
13 that kind of went over a weekend there, so it was late, March the
14 -- February 29th and it went all the way into March, you know, the
15 6th. It was pretty normal.

16 Q. And was your shop working multiple helicopters at the time or
17 just 191LL?

18 A. At that time, just currently 191 was in the hangar being
19 worked on.

20 Q. And how would you characterize your work environment in terms
21 of do you feel it's, you know, high pressure, calm, toxic,
22 friendly, just describe your work environment to us.

23 A. Sure. The work environment is very -- I would say we all get
24 along great, there's no toxicity, there's no pressure. If there's
25 any pressure, it would be an internal pressure, but there's never

1 any external pressure from Metro or LifeLine and definitely since
2 I came back from -- leaving Metro and coming back, I've had no
3 issue with any of that, ever.

4 Q. And you didn't feel any pressure that weekend of March 6th
5 where you had to do work on 191LL?

6 A. No, no strong pressure, mainly, to me, the internal pressure
7 to, you know, try to find the issue, you know, that was it.

8 Q. Do you remember if you had any -- I don't want to say issues,
9 but anything going on in your personal life at the time that might
10 be distractions during that weekend?

11 A. No, I -- no. No, no distractions.

12 Q. And do you feel like you have the backing and support of your
13 company?

14 A. Yes.

15 Q. Okay. In this case, you know, you and other mechanics have
16 provided statements to Metro Aviation, who then provided to us to
17 give us an idea of what happened during the maintenance events,
18 specifically troubleshooting the pedal feedback discrepancy. In
19 that statement you had mentioned that or you stated that Andrew
20 Newman was asked to remove the T-bolt to verify the friction on
21 the sliding sleeve and that wasn't written up. Can you walk us
22 through the typical process for what you guys do when you remove
23 and retain hardware to facilitate other maintenance actions such
24 as this?

25 A. Yes. Completely normal in the work order when someone's

1 asked to do something, the write-ups is made, they go over --
2 usually they will go to a computer and pull up task in the -- you
3 know, if it's an Airbus task or a Safran engine task and we'll go
4 look it up to make sure I have the tooling I need or any special
5 tools or hazmat or PPE that's needed to perform the task. Upon
6 the task, the hardware is usually -- I would say 99 percent of the
7 time will be put into a bag and usually there's like, on our
8 baggies, they're like a fabric bag with a little tag attached to
9 the back, they will usually write something, either the serial
10 number of the aircraft to make sure that it's -- when it's placed
11 on the shelf that it's also recognizable which aircraft it would
12 belong to.

13 Usually, there's one aircraft in the hangar, so it's not an
14 issue, but we do it anyway, just in case. And/or if it's just
15 going to be something they're pulling off, putting right back on,
16 they'll put it into a -- one of those wax paper cups, you know,
17 and that -- but that's usually -- 90 percent of the time, that's
18 how that all goes down.

19 Q. Okay. And even in something limited like this where you're
20 removing just the T-bolt, is it typical for someone to go and look
21 up the full task for that work? The T-bolt removals, from my
22 recollection, encompassed in a much larger task of removing or
23 replacing a flight control component, so would they dig into that
24 or would they just say hey, I just need to remove this T-bolt, I'm
25 going to get the wrench and remove it?

1 A. The mechanics that work currently below me are very -- I
2 guess they don't -- their A&P licenses are probably all under five
3 years at least, I think. Most of the time they will go look the
4 task up, they -- you know, they don't have a lot of BK time and
5 they will dig into the task, mainly look into does the task
6 require the bolt to be replaced, sometimes Airbus will put notes
7 in there, you know, do not reuse this hardware, replace this nut,
8 replace this bolt, don't reuse or perform an inspection.

9 So they usually are always in the book looking to verify that
10 they're doing the right task and if they need to get new hardware,
11 do we need to order the hardware and mainly, like I said, the
12 hazmat as well, what hazmat impact on this before we place it back
13 in, is there -- I think there's an O-ring on that T-bolt, the
14 O-ring would get replaced, so they're usually in the books pretty
15 thoroughly all the time.

16 Q. Okay. And is there -- is there a process that you use,
17 either formalized at Metro or personally, in terms of signifying
18 that something that's reinstalled hand tight to facilitate other
19 maintenance?

20 A. Never have I seen what happened happen there, I've never seen
21 hey, I'm going to put something in halfway. Usually, I ask -- we
22 don't finish or start the task unless we have all the parts, the
23 hazmat there, and that's me, not a Metro thing, that would be my
24 personal preference that hey, let's not put that all together
25 until we have everything, I don't like to halfway install

1 something and then come back another day and maybe that mechanic's
2 not there and I don't like to do mid-task like that, like it would
3 be you need to start-to-finish it or let's just wait and leave it
4 on the shelf until we have all the parts and pieces. We're not
5 getting further ahead by doing that.

6 Q. Okay. In this case, with the T-bolt having been removed, do
7 you remember if someone put it into a baggie and tagged it?

8 A. No, I was not back there during that, I was the one who asked
9 him to pull the T-bolt, I wanted to verify the bearing from the
10 sliding sleeve swashplate, make sure that the bearing spins in the
11 sliding sleeve itself, is it able to be moved without any
12 friction.

13 They pulled the -- when they pulled it or Andrew pulled it, I
14 believe, verified it was good, I walked away at that point to
15 immediately go, I think, get a hold of Airbus and be like where do
16 we go next, at this point, like, I'm kind of at a loss or, you
17 know, looking through everything, what we should do next, talking
18 with the lead tech, can I come up with a game plan of where I go
19 next, so I didn't physically see with my eyes how the T-bolt was
20 removed, where it was placed, and where it was -- when it was
21 installed, I was not back there, so I have no -- you know --

22 Q. Okay.

23 A. -- no recollection of that.

24 Q. All right. And talking just generically with the SMC, the
25 secondary maintenance checks, do you or are you taught to look at

1 just the items that were worked on, that you are doing the actual
2 SMC on for the task, or do you look at the larger area, look for
3 discrepancies or whatnot of areas that might not have been touched
4 during the task?

5 A. I believe, in the class that Metro provides for the secondary
6 check that they do, I'm not a hundred percent, so I hate to say
7 it, I believe they want you to look around the area, just not that
8 one focused area, for tools, rags, things that can be left behind
9 in the work area, yes, it is mentioned to look. Personally, I do
10 like the 36-inch rule, that's just my own personal thing, I look
11 around the whole area, like I said, for tools or rags or anything,
12 or FOD that can left behind from the job and that's just my
13 personal way of -- when I look around.

14 MR. SHIN: Okay. I'll pass it on over to Josh Wade at the
15 FAA and see if he's got questions.

16 BY MR. WADE:

17 Q. Hey, Chad.

18 A. Hi, Josh.

19 Q. Yeah, so Chich asked a lot of questions or covered some stuff
20 I was going to cover, so I want to focus in on the -- who was
21 talking to Airbus tech services?

22 A. Myself.

23 Q. Okay.

24 A. It was me.

25 Q. And did you make multiple calls to them or --

1 A. I know there was at least, I believe, two separate
2 conversations with Airbus.

3 Q. Okay. And this was on the day of the accident, right, when
4 you were troubleshooting just prior to the last operational test
5 flight that tested it?

6 A. No, I don't believe it was all in one day. I'm not for sure,
7 but I believe that I made a phone call on the 5th of March
8 discussing the flight, the flex ball and cable, and then I do
9 believe there might've been a conversation on the 6th, I'd have to
10 look at my phone records to be sure, but I believe there was two
11 different conversations with J.D. Shauger that we discussed this
12 tail issue.

13 Q. Okay. And then, so when the -- when you guys were pulling
14 the forks to clean them and you removed the T-bolt on the 6th,
15 were you talking to Airbus at that time? I know you just said you
16 weren't sure if you talked to them on the 6th.

17 A. Yes, and that -- that was the 6th, that was one of the
18 suggestions, on the 6th, that Airbus recommended that we pull the
19 blade (indiscernible) grips, look for any debris or any wear of
20 the Teflon liners that could be built up that can cause the
21 friction, to verify that there's not been an over-torque of the
22 bolts that hold the blade mounting fork through the T-T (ph.) or
23 the strap pack --

24 Q. Yeah.

25 A. -- to verify that there might've been an over-torque issue,

1 that it could've ovaled and by ovaling that it could cause a
2 friction bind-up, so we were going through and inspecting, you
3 know, the blade grips for that and that phone call was made on the
4 6th with J.D. Shauger.

5 Q. Do you remember about how long the phone call was?

6 A. I don't think very long. Less than five minutes, I believe,
7 I don't -- I've have to, like I said, look at the phone records to
8 be a hundred percent sure.

9 Q. Okay.

10 A. I believe they weren't more than five-minute conversations
11 with J.D.

12 Q. Did they ever ask you to remove the T-bolt or --

13 A. No. That was myself, I'm the one that after --

14 Q. You made that decision?

15 A. I think it's after we looked at the blade grips and did all
16 that maintenance and we found nothing wrong, that's when I asked
17 him to pull the T-bolt next because I wanted to verify in that
18 area that we could eliminate anything, from the bellcrank bearings
19 to the sliding sleeve and all that was -- there was no issues back
20 there.

21 Q. Right. And did you guys -- when he -- when they -- when you
22 discussed with Airbus to remove the forks and look for an over-
23 torque and re-clean them and all that, were -- did you guys -- I'm
24 trying to figure out how to put this, did you discuss any of them
25 references or did you already have those out or --

1 A. No, I already -- no, we knew right where they were, we have
2 AMM references --

3 (Crosstalk)

4 BY MR. WADE:

5 Q. Yeah, okay. And you already -- Chich already asked this, but
6 you didn't feel any pressure specifically on that day to get the
7 plane back -- or the aircraft back on line to be alert for that
8 night, right?

9 A. No. No, I never -- no, there was no pressure externally from
10 anyone or did I feel it from anyone that day, more of an internal
11 pressure of, you know, here we are on day four or five, we're
12 trying to figure out something that should be found. I mean, when
13 you tear the system apart as many times as we did, the flex ball
14 and cables, you just kind of put that pressure on yourself, of I
15 -- you know, I want to get this fixed, I don't want a pilot to go
16 back up and experience anything in the pedals, you know, so --

17 Q. Yeah.

18 A. -- more of an internal thing, not an external thing.

19 Q. Okay. And then, so it was you and Andrew and Adam were the
20 back, right, Andrew Newman and Adam Herbert?

21 A. So on that, Adam was not on the back, I believe, until he was
22 asked for -- can he assist --

23 Q. Okay.

24 A. -- with helping him reinstall -- the blade grips can be a
25 little tricky going back together, it's kind of a tight fit, and I

1 believe that's when Adam -- and I wasn't there for that, either,
2 but I believe the lead tech had tasked Adam to go pull a trim
3 motor from another aircraft and when Adam was back there getting
4 everything ready to go do that task or in between, starting at --
5 in the middle of it, I believe he was asked to help assist, Andrew
6 asked him hey, can you help me get this blade grip back on.

7 Q. Okay.

8 A. And I believe that's when -- and once again, I wasn't there,
9 just going off of what they told me, Adam said why don't we put
10 the T-bolt in to help hold the rest of this assembly more stable
11 while you're trying to put this on and I believe that's when the
12 T-bolt was grabbed and installed finger tight to assist Andrew and
13 that's when that happened.

14 Q. Okay. And did you feel like a blade balance needed to be
15 done? Because you pulled the blades or --

16 A. Yeah, I mean -- yes, I probably would go back, if I could do
17 it again, yes, I would've performed a blade balance, but we didn't
18 do any maintenance that would have affected, I believe, the blade
19 balance, I'd have to read the AMM again. I don't know if you just
20 -- pulling and inspect and go back together that you have to pull
21 a blade balance, but yeah -- I mean, yeah, it definitely would be
22 a good cautionary to perform one.

23 Q. Yeah. And just so you know, I mean, I reviewed the AMM
24 pretty thoroughly and I didn't see where it was actually required,
25 I was just curious, from your professional background, that you

1 thought --

2 A. Usually --

3 Q. -- it's a good idea.

4 (Crosstalk)

5 MR. MESSMORE: -- during the 300-hour, I think it's 300-hour
6 double IP inspection, they have you just pull some bolts, but they
7 still ask that you, in the double IP, perform a tail balance.
8 Now, because every 300 hours they want to make sure the tail's
9 staying balanced, but most of the time when we're doing
10 maintenance on a heavy, there's usually a three or 400-hour
11 inspection that both, I believe, have you perform the tail
12 balance. So I know the tails are balanced pretty frequently,
13 they're --

14 MR. WADE: Right. I think that's all I have at this time
15 unless I think of something else.

16 MR. MESSMORE: Okay.

17 MR. LINDBERG: Great. Thanks, Josh.

18 BY MR. LINDBERG:

19 Q. Going back to the hand tight installation of the T-bolt and
20 earlier you had stated something to the effect of I've never seen
21 that before or that's not what I would have done, can you describe
22 what you would've expected to happen after the T-bolt was pulled?

23 A. I believe after the inspection, me, if I was performing the
24 maintenance, I would have -- I usually start just in the reverse
25 order that it went apart. I think my next step would've been let

1 me complete the T-bolt, let me get the proper O-rings, the hazmat,
2 whatever was required, get the torques, let's get that torqued
3 together first and let's get that SMC'd and then I would've went
4 back to the next thing that I had off and, you know, basically, I
5 try to make it a rule of thumb, when apart in this order it's
6 going to go back together in that order and that's just how my
7 brain works, I don't know that that has to be the right way, it's
8 the way I work.

9 Q. Okay. And is that something, that type of practice,
10 something that you are imparting on these younger A&Ps or how do
11 you train that into these guys, if at all?

12 A. I don't know if I train necessarily that way, I will let them
13 work at their pace, in the way they feel comfortable unless I see
14 that it's incorrect. If it's incorrect, I pull them aside, away
15 from everyone, we discuss, we read the AMM together, I'll note if
16 they missed anything.

17 I'm pretty thorough as -- as the shop manager, when I see the
18 mechanics working, if it's a task I know they've never been tasked
19 with before, I'm in the book just as much as they are, I'm reading
20 through the AMM, I verify, I see they got the hazmat out, that
21 they have all the tooling, the proper tooling, and I'm verifying,
22 usually watching them either from a distance or right beside them,
23 you know, as they perform it, if it's especially -- they're using
24 special tools, I'm going to be there to explain because the book
25 doesn't always go through how to use a special tool, it just says

1 use special tool. Therefore, if I have experience using that
2 tool, I'm going to go with them and make sure they understand, so
3 they don't damage the tool or the aircraft. So that's usually the
4 practice I use. With four guys, I mean, I can only have two sets
5 of eyes, so you know, I do my best.

6 MR. LINDBERG: Fair, understood.

7 Chich, back to you, if you have anything else to follow up
8 with.

9 BY MR. SHIN:

10 Q. Yeah, with the pedal feedback issue, is that something that
11 you've seen on other BKs or is this --

12 A. Yes.

13 Q. Okay. Can you expand on that?

14 A. I would say in the last 10 years -- and it's only going to be
15 the EC145, the C-2 BK, one's a flex ball cable where my -- a C-1
16 back to the A-1 models I've worked have a push-pull, too, so it's
17 a big difference in the way they approached the tail system on the
18 145. When they did that, I don't know if you've ever actually
19 seen the cable, have you ever seen a flex ball cable?

20 When it's fully stretched out, it's a pretty long cable and
21 it almost goes from one end of the shop to the other and by the
22 time you install it there's a lot of bends and curves and
23 everything else, and I have noticed -- no, I believe the 135 has
24 more of an issue with it than the 145, specifically around where
25 it bends around the number two engine, there's a battery box there

1 and it bends around and there's a lot of heat and we do notice
2 that we get higher frictions over time or even sometimes after
3 just -- I've seen them within 300 hours, they start getting more
4 and more friction and the system isn't very acceptable to
5 friction, it's -- it does not like friction. That's where the
6 feedback begins. It can be from a trim motor, it can be from a
7 SEMA, can be from the yaw brake itself, but there can be feedback.
8 And so I have experienced -- I think I've changed personally six
9 cables in the last 10 years.

10 And that's just myself, there's more that's been done by
11 other mechanics, and that's just local. We've had the blade grip
12 over-torqued, yeah, I think, like we didn't over-torque them, we
13 received a set that had been repaired once that were ovaled, that
14 was -- that was the worst feedback I've ever experienced. I was
15 personally in the aircraft flying when it -- yeah, it was very
16 abrupt, the way the tail would spin and kick. So I have seen a
17 lot of tail issues on the 145, yes.

18 Q. And is there a mechanism or a process for you guys within
19 Metro Aviation to share between your maintenance bases, you know,
20 information like this, like hey, I've seen -- I'm seeing this
21 pedal feedback issue, we've changed the flex ball cable out and
22 that didn't fix it, what else have you guys done with your ships?

23 A. I would say it goes -- you're going to have to break it down
24 to region, then. I don't know that there's an overall, like --
25 like hey, I'm talking to someone in Florida that has the same

1 problem, but in the region, all of us, especially when I was a
2 lead tech, we spoke pretty commonly, you know, sometimes before we
3 called the tech rep I would shoot an e-mail or a voice or a text
4 message out, "hey, have any of you other lead techs in my area
5 experienced this," because sometimes the best knowledge you can
6 get is "hey, I've done that, I've got a Word document that kind of
7 broke down what we did and what Airbus suggested" and sometimes I
8 can use that to assist me with how to attack maybe the same issue
9 or maybe it's a different issue.

10 So I believe that yes, in Metro region to region that
11 happens, I would say we talk frequently between each other,
12 especially if -- you know, we have the SharePoint system where it
13 shows our aircraft that are out of service and you'll see -- you
14 know, every day I'm scanning that every morning as a manager
15 looking at who's out of service and what's their issue and I can
16 use that as a tool to write down a mental note, like hey, I saw
17 that, you know, Mechanic A had this issue over in Wisconsin and he
18 was out of service for four or five days.

19 After that's done and completed, I might even make a phone
20 call to him, "hey, I noticed you're out of service for this issue,
21 can you run me through when you have a moment how you approached
22 that and what was the fix," so I can put that in the back of my
23 brain or in a note that when hey, if I ever have this again, I
24 know who to call because they just spent five days going through
25 that issue. So SharePoint would be the one tool that might answer

1 that question is -- there is a way to see who's out of service and
2 what they're out of service for.

3 MR. SHIN: Josh Lindberg, can you come back to me one more
4 time? I had a question, I was typing and I totally forgot it and
5 I was thinking this is a good question to ask.

6 MR. LINDBERG: No problem.

7 MR. SHIN: I just blanked out for a second.

8 MR. LINDBERG: Keep thinking and we'll come back. Yeah.

9 Josh Wade, do you have anything else to follow up with?

10 MR. WADE: Yeah, I do. I just want to confirm a couple
11 things. Let me -- I'm going to minimize you, then.

12 BY MR. WADE:

13 Q. So in your statement -- so the helicopter, in the statement
14 you said you asked Andrew Newman to pull the T-bolt and sliding
15 sleeve to verify the friction and that's when you didn't make the
16 write-up, and then it flew after that at an unsat, so it flew
17 twice after the -- installed the T-bolt, correct? Is that --
18 A. Let me go through that.

19 Q. Because it did show that there was an unsat flight, then a
20 landing, and then you did the yaw trim motor up front and then
21 that's when you got the satisfactory flight.

22 A. Okay, so I believe -- no, that's not -- maybe I wrote that
23 wrong. I believe, on the 6th of March, Airbus requested that I
24 put in the dual control pedals, they wanted data on what the
25 frictions were in a hover. That would mean --

1 Q. Right.

2 A. -- we installed the co-pilot dual pedals, it would take a
3 gauge, pull-push-pull gauge out, the pilot would perform a hover
4 and they're just looking -- just as that pedal moves a little bit,
5 what that breakout force was. At that time the T-bolt had not
6 been removed, they just wanted data, I believe, and --

7 Q. Okay.

8 A. -- then the aircraft landed, the T-bolt was done. After
9 inspection of the blade grips and the T-bolt, nothing was found.
10 We then -- at that time there was no more flights, we just changed
11 the trim motor next, it was the next -- basically, the only thing
12 left at that point and we replaced the trim motor and then there
13 was a satisfactory test flight. So that was two flights that day.

14 Q. It only flew the operational check flight satisfactory after
15 the blade forks and T-bolt were put back in.

16 A. Correct.

17 Q. It did not fly an unsat, then land, then --

18 A. Right, right.

19 (Crosstalk)

20 MR. MESSMORE: Right.

21 BY MR. WADE:

22 Q. Okay. So that kind of conflicts with your initial statement,
23 which is okay, I just want to make sure we know that. And then
24 you got a satisfactory out of it on that last flight after the
25 forks were put back in and the T-bolt was put back in and -- and

1 it was -- and the yaw trim motor, and then it was signed off.

2 A. Correct.

3 MR. WADE: Okay. Hey, Josh, just to you, we're going to get
4 a copy of this recording, right?

5 MR. LINDBERG: That's correct.

6 MR. WADE: Okay, because that conflicts with the actual
7 statement, so I just want to make sure I have it. I think that's
8 all I have.

9 MR. LINDBERG: Great. Chich, back to you.

10 BY MR. SHIN:

11 Q. Yeah. In working, we'll say at Metro at this point, in your
12 past work experience at Metro, have you seen something similar to
13 this in the past where someone has hand tightened something but
14 then someone's caught it later on in the maintenance or SMC
15 process?

16 A. Not personally, no, I've never found something installed and
17 not completed, I might have found a cotter pin not installed, it
18 was torqued, a cotter pin might have been missed. I've seen, you
19 know, wrong safeties, incorrect safeties, loose safeties, but I've
20 never seen something installed and not in its complete entirety,
21 no.

22 MR. SHIN: Okay. That was the one question I thought of.
23 That's it for me, Josh.

24 MR. LINDBERG: Great, thanks.

25 BY MR. LINDBERG:

1 Q. So to kind of bring this all together, in your opinion, in
2 your honest opinion, how do you think this happened?

3 A. I think this is human factors, the classic Swiss cheese. I
4 think a lot of moving parts went on as far as there was a lot
5 going on in everyone's mind of what the problem was, I think the
6 focus might've been more on the fix than the task at hand.

7 I think definitely one thing that we're for sure practicing
8 now is if you're tasked with the maintenance, you do the write-up
9 and you do all the write-ups that are required, if it's -- you
10 know, if it's a cowl that needs pulled to perform it, which we've
11 been pretty good at, I mean, we try to write up everything we pull
12 off, this was just that one-off thing where the mechanic forgot to
13 write it up, I forgot to write it up, and this Swiss cheese lined
14 up.

15 There's another mechanic asked to help that installed it but
16 did not complete the task fully and I think the other mechanic got
17 -- I mean, I don't know what went through Andrew's mind, I don't
18 know, but he went to the blade forks next and it was just, it was
19 missed, you know.

20 Q. And do you think that the partial installation of the T-bolt
21 should have been caught with a secondary maintenance check?

22 A. I mean, yeah. Yeah, I'm the one who performed a secondary
23 maintenance check on the blade grips and I think I even found a
24 cotter pin missing and I went back and, you know, corrected it and
25 went back after that, even, and for some reason in my mind the

1 T-bolt just was not in my mind, it's -- you know, it's kind of
2 more back in the backside or I was focused here on the blades, you
3 know, and I -- I missed it. It should've been caught, yes, I wish
4 I could say yes, I caught it, but I didn't. I was focused, you
5 know, 18 inches away, another piece, it was missed.

6 Q. And do you think that if the T-bolt removal would have been
7 written up that it would've been caught downstream because there
8 was a write-up associated with it?

9 A. Yes, 100 percent. Yes.

10 Q. And you were just saying that moving forward your practice is
11 going to be if you remove something, you write it up and you --
12 you complete that task, correct, so that wouldn't have been
13 something that would have fallen on your shoulders, it's whoever
14 removes it is responsible for writing it up?

15 A. Yes. And I still -- and even I see guys working, I'm going
16 to ask if you wrote that up, right, I seen you pulled that off to
17 get to this, you wrote -- I mean, I'm verifying now more than --
18 probably more than I need to, but I'm verifying that they're
19 making the write-ups, you know, they're going through each task
20 and everything's being wrote up, that's the biggest thing, because
21 that way there's ownership, they have to go look up the task, they
22 have to, you know -- going back together with it, but it may not
23 be the same mechanic. Now at least they know, when they're
24 looking at the work order, hey, they had this off, this off, this
25 off. I mean, even if it makes the work order a size quadruple,

1 that's not an issue, we'd rather have that than, you know, have
2 another miss.

3 Q. Understood. Finally, are there any other areas that you feel
4 that we should be focusing on or looking into as a part of our
5 investigation?

6 A. Not that I -- no. I -- no. I think everyone's been very
7 forthcoming, at least, the mechanics in the shop, you know. I
8 didn't even know that day of the accident, I had not known what
9 happened until looking, you know, at it and seeing it and then
10 that's when all the -- you know, like oh, okay, this is what was
11 missed then. Yeah, I -- the guys were very forthcoming, no one
12 tried to hide anything, so I -- I think it's just working on what
13 can we do to prevent this from happening in the future, that's the
14 big thing.

15 MR. LINDBERG: Yeah, absolutely, and we appreciate that. We
16 also appreciate your honesty and willing to be very forthcoming
17 about everything that's going on in this investigation because it
18 obviously makes our job a lot easier and allows us to focus on how
19 to prevent this from happening again, so we definitely appreciate
20 that from you.

21 MR. MESSMORE: Okay.

22 MR. LINDBERG: Anything else from Chich or Josh Wade?

23 (No response.)

24 MR. LINDBERG: All right, I will end the recording right now.

25 (Whereupon, the interview concluded.)

CERTIFICATE

This is to certify that the attached proceeding before the

NATIONAL TRANSPORTATION SAFETY BOARD

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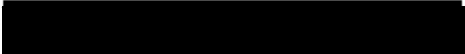
IN THE MATTER OF: ACCIDENT INVOLVING EUROCOPTER
 DEUTSCHLAND AT THE PURDUE UNIVERSITY
 AIRPORT IN WEST LAFAYETTE, INDIANA
 ON MARCH 6, 2024
 Interview of Chad Messmore

ACCIDENT NO.: CEN24LA128

PLACE: via videoconference

DATE: April 3, 2024

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.



Karen D. Martini
Transcriber

UNITED STATES OF AMERICA

NATIONAL TRANSPORTATION SAFETY BOARD

* * * * *

Investigation of: *

*

ACCIDENT INVOLVING EUROCOPTER *

DEUTSCHLAND AT THE PURDUE *

UNIVERSITY AIRPORT IN * Accident No.: CEN24LA128

WEST LAFAYETTE, INDIANA *

ON MARCH 6, 2024 *

*

* * * * *

Interview of: ADAM HERBERT, Field Mechanic
Metro Aviation

via videoconference

Wednesday,
April 3, 2024

APPEARANCES:

JOSH LINDBERG, Senior Aviation Accident Investigator
National Transportation Safety Board

CHICH SHIN, Aviation Engineering Investigator
National Transportation Safety Board

JOSH WADE, Aviation Safety Inspector-GAM
Federal Aviation Administration

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I N T E R V I E W

(9:58 a.m.)

MR. LINDBERG: The recording is started, the date is April 3rd, 2024, the time is 9:58 Central time. My name is Josh Lindberg with the National Transportation Safety Board, investigator-in-charge for this investigation. With me today is Chich Shin, helicopter engineer with the NTSB, and Josh Wade, FAA inspector-in-charge.

This interview is of Adam Herbert of Metro Aviation. The purpose of the interview is to learn about your recollection regarding the maintenance work performed on the BK117, November 191 Lima Lima, and your job as a maintainer with Metro Aviation.

Please be advised of the following: you are allowed one representative of your choosing during this interview and they cannot answer questions for you. I see that no one is with you that I can see, are you choosing to decline representation?

MR. HERBERT: Yes.

MR. LINDBERG: Next, the NTSB is -- or NTSB investigations are non-punitive, we're only interested in the facts of the -- this accident and trying to prevent reoccurrence, and this virtual interview is being conducted with video capability, however, the -- only the audio is being recorded and it will be sent for transcription, that transcription will be provided to you for final review before it is placed in the public docket. Do you have any questions before we begin?

1 MR. HERBERT: No, sir.

2 MR. LINDBERG: Great. I will turn it over to Chich Shin to
3 begin with the questions.

4 INTERVIEW OF ADAM HERBERT

5 BY MR. SHIN:

6 Q. Good morning. Can you just go over the professional
7 certifications you have and generally when you received them?

8 A. I started off aviation in the Army as a UH-60 repairman in
9 2005, roughly around December. I didn't actually get my A&P until
10 July, I believe, of 2014. I didn't use it in civil aviation until
11 December of 2022 when I started at Metro, so I have roughly 19
12 years of military experience on a UH-60 and then by now, about a
13 year and a half of BK experience in civilian aviation, Part 135.

14 Q. And you said you started at Metro around December of '22, was
15 it?

16 A. Yes, sir.

17 Q. And what's your current position at Metro?

18 A. Field mechanic.

19 Q. And that's at the Indianapolis base?

20 A. Yeah, IUHMX, the hangar.

21 Q. And has it been the only location that you've worked at since
22 starting at Metro?

23 A. No, I've worked at other outlying bases, I spent -- it
24 must've been -- well, I guess the downtown base, I am going this
25 year and I do a week rotation, I don't know, once every two, three

1 weeks I'll do a seven-day stint of on-calls for that, and I did a
2 two-and-a-half month stint at IN4 in Columbus last August through
3 -- halfway through October, probably.

4 Q. Okay. And you mentioned your work experience with the BK,
5 it's about one and a half years, is that correct?

6 A. Yes, sir.

7 Q. And do you have experience with other helicopter models at
8 Metro Aviation?

9 A. No, sir.

10 Q. Okay. And on military time, any other work experience on
11 helicopters besides the UH-60?

12 A. No. No, I -- the only thing I've done with any kind of BK
13 was the Army's got Lakotas and I was an air crew member on a
14 Lakota for about 18 months, but I didn't really turn a whole lot
15 of wrenches on it. I did pre-flights here and there, dailies, but
16 nothing extensive.

17 Q. Okay. And what's your typical work schedule like at Metro
18 Aviation?

19 A. While I'm working at the hangar here, doing heavy
20 maintenance, it's 8:00 to 4:00 Monday through Friday. And then as
21 -- from the base, working the base, usually it's -- depending on
22 the base, if I'm actually on an outlying base, I'll do the daily,
23 do some of my hanger duties per Metro, so I go in at 6:30, start
24 the daily, I probably leave around there around 10 o'clock or so,
25 then I'm on call the rest of -- well, for 24 hours every day. If

1 I work at IN1 up here, I'll come in at 5:30, do the daily, and
2 then come over to the hangar side and help them with heavy
3 maintenance until, I don't know, lunchtime, 1 o'clock, you know,
4 it just depends what's -- what we have going on, so --

5 Q. Okay. And the week that the maintenance was performed on the
6 accident helicopter around March 6th or so, what was your work
7 schedule like that week?

8 A. It was the same, 8:00 to 4:00. I don't recall working later
9 or anything on that. Yeah, I don't -- I don't really recall
10 exactly what the schedule I picked was on that, but I don't -- I
11 don't remember it being long hours or having to work a lot of
12 overtime on it.

13 So I was on call the week before that and did a little bit of
14 work on that Saturday, but it was only a couple hours, so it
15 wasn't like I was, you know, tired, overworked or, you know,
16 anything -- working too much, nothing like that, so --

17 Q. And specifically for the day of March 6th, I believe, is when
18 the statement said that the T-bolt was removed and installed, do
19 you remember being tired or fatigued that specific day?

20 A. No, sir.

21 Q. And was there anything going on in your personal life at the
22 time that could've been a distraction at work?

23 A. No.

24 Q. And were you personally working on other helicopters in
25 parallel with 191 during that weekend or that week? Do we have a

1 video freeze or is that me?

2 A. I think so, yeah. I'm still here.

3 Q. Oh, okay. So I think -- I don't know if it's on my end or
4 your end, but the video froze for a second, so I'm going to ask
5 the question again because I didn't hear it.

6 A. Yeah, that's fine.

7 Q. Were you working on other helicopters in parallel with the
8 work being done on 191?

9 A. Yes.

10 Q. And what were you working on, on the other helicopter at that
11 time?

12 A. I don't -- I know -- so that morning is kind of blurry to me,
13 I mean, it's been a couple weeks plus, you know, all that went on.
14 Not to say I flushed all that but, you know, it's kind of a blur
15 once it's all said and done, but --

16 Q. Yeah.

17 A. -- the other aircraft I was working on specifically and it
18 wasn't necessarily -- that aircraft was -- there was something
19 wrong with it, it was in conjunction with troubleshooting 191. So
20 I was waiting for it to come in, they were on -- they had a
21 mission that they flew on, we were waiting for it to come back so
22 we could swap trim motors to narrow down the tail problem that we
23 were having, which was feedback in the pedals. So I guess a
24 little bit of background on that is we replaced pretty much
25 everything in that tail rotor control channel, up to that point.

1 We were going back to see if the trim motor's -- because those are
2 notorious for going bad on those things, so let's go back, check
3 the trim motor, but we were going to move it to another aircraft
4 just to verify that -- take it out of the system, put it in
5 another system and see if that's what the problem was, so up to
6 that point, yeah, that's what I was going to work on, was 193, but
7 I was waiting for it to come in to the hangar, so --

8 Q. Okay.

9 A. After the flight.

10 Q. Did you feel any time pressures at work that week,
11 specifically with 191?

12 A. No. No. I mean, the only pressure you feel is the pressure
13 you kind of put on yourself, you know, when you got bases out of
14 service, but I -- no one -- no one in charge of me or at Metro
15 ever puts -- since I've been here for 18 months or so has ever put
16 any pressure on me to get maintenance done, so -- it's just that
17 the stuff that you put on yourself as a mechanic, like yeah, I
18 need to come in, you know, I need to get this done and get it
19 pushed out, not lollygag around, so you know.

20 Q. And how would you characterize your immediate work
21 environment, do you feel like it's high pressure, calm, toxic,
22 friendly?

23 A. To me, it's a normal work environment, I mean, coming from
24 the military world where everything's up-tempo, got to get it done
25 and got to fly it, I feel like it's -- I don't want to say laid

1 back, but it's not -- you know, it's middle of the road, really,
2 it's not -- I mean, everybody's nice to each other, we all get
3 along with each other, I think it's a really good team we have
4 here, honestly, and the supervisors are great, always willing to
5 help, everyone's willing to help each other, so -- yeah, it's a
6 good place.

7 Q. Can you -- sorry, I'm just going through some of the
8 questions that you've kind of already answered and crossing them
9 out. So I think, was it you, in the statement that you have
10 provided, that you had removed the T-bolt? Are you --

11 (Crosstalk)

12 MR. HERBERT: No. So per my sworn statement, I -- and this
13 is exactly how I recall it, like I said, I was waiting for 193 to
14 come, get pushed in the hangar, it was getting fuel, like I said,
15 they had just come back, they were putting fuel in it, they were
16 going to push it in the slot next to the 191 and I was tasked to
17 pull the trim motor out of 191 and the trim motor out of 193, swap
18 trim motors, get the paperwork done for both of those and then go
19 test fly 193 to troubleshoot that trim motor.

20 So I was waiting for it to come in. The two mechanics that
21 were working on the tail rotor were doing that job, the one had to
22 come off because the Airbus rep was calling, because we had the
23 Airbus rep involved in this feedback issue that we were having,
24 and asked me just to give him a hand while he's on the phone, so I
25 -- you know, I climbed up, up on the ladder, and as -- I don't

1 know, on a BK, putting the tail rotor forks with the blades on, on
2 the head, takes two people to, you know, help hold everything, get
3 it all down, you got to beat them down on there, so that's what I
4 was helping him with, was getting the blades reinstalled back on
5 the head. So I never removed anything off of it, I was only
6 giving him a hand, per se, and then I -- once we got the blades
7 put on, he started with -- putting PC rods on them.

8 The tail rotor has a sliding sleeve or a swashplate, some
9 people call it the tail rotor swashplate, but it's a sliding
10 sleeve and if you don't have that, if you don't have that clocked
11 right where that T-bolt sits in there, you can't get your PC rods
12 to line up right when you put it on. So he was putting -- he had
13 the outboard bolt or outboard install where he put it on, put the
14 nut on, and he was putting the inboards on and I noticed he was
15 struggling and so it's like hey, I'm going to put this T-bolt in.

16 So I put the T-bolt in, I put the two bolts in there and I
17 was running them down with my hand and literally, like as I'm
18 doing that, that's when the aircraft comes in. My supervisor gets
19 off his phone call, hey, we need to get those trim motors swapped.
20 He got there, he can finish the job. So I looked at him and I
21 said hey, I'm going to finger tight these bolts here with this
22 T-bolt and then I got to go and he looked at me, "Roger, man,
23 thanks," so he can put PC rods on it and I went and did the job.
24 So I went and did that job, put -- I swapped them and did the
25 paperwork, pushed it outside to test fly it. By the time my test

1 flight's done, I'm pulling it back into the hangar, they're coming
2 out with 191 to go do its test flight. So I didn't -- all the
3 stuff that I had done, physically done and signed off, our SMC
4 already complete on that, so you know, in my general scope,
5 everything that I had touched was complete and signed off, so when
6 it pushed out, I didn't have any other reason to go back and touch
7 the aircraft.

8 I mean, looking back, any other situation in the world, I
9 would've completely installed that part if I put in there, but at
10 that point, I -- you know, you make that contact with the other
11 mechanic, hey, I'm putting this on here for you, you know, the
12 assumption's there, but it should not be.

13 So I put that in my sworn statement, you know, as a seasoned
14 mechanic on helicopters and being around this world for as long as
15 I have, you kind of know that if you're going to put something on,
16 you put it on. You don't -- you don't put it on and then just
17 assume that the -- you know, that the other person's going to
18 finish the job, so I kind of put that on myself for that, but --
19 yeah, it's still there.

20 BY MR. SHIN:

21 Q. Yeah. Well, mistakes happen, so --

22 A. Yeah.

23 Q. Do you recall when you got the T-bolt and the hardware to
24 install it and do you remember the condition it was in, in terms
25 of was it in a baggie, was it in a cup, I guess, where did you

1 find the T-bolt?

2 A. Well, so we have -- I don't know how tall it is, a 10-foot
3 ladder with an actual standing platform and we -- so the reason
4 why that was pulled off to begin with, if I remember correctly, is
5 to check to see how much friction was on the blade cuffs
6 themselves. So to do that, you kind of have to take some of the
7 tension off the controls to relieve that tail rotor bellcrank from
8 that sliding sleeve so you can kind of torque those cuffs around
9 to see how much friction's on those to eliminate that having
10 friction in that control -- or in the yaw control channel.

11 So when I did that, you know, we take it off, we lay it right
12 there on the ladder and the ladder's right there where you're at,
13 you know, I guess it's like one of those things where you kind of
14 take something apart to check it, you kind of lay it right there
15 in front of you and then you put it all back in, you know.

16 It's not like it's "I'm taking it off and then I'm going to
17 bag it, tag it, put it on the shelf," because it's going to be --
18 I'm not going to get right to it or right back at it right away,
19 this is all happening within, you know, I don't know, 30 to 40
20 minutes, this whole thing, so this isn't like drawn out. Like I
21 said, I don't remember exactly the timeline with it, but it is not
22 -- no longer than an hour. So I found the T-bolt, right there on
23 that ladder platform is a T-bolt and the two bolts sitting right
24 next to it, T-bolt sitting straight up, I didn't -- I mean, it
25 looked -- by looking at it, it was serviceable, I would've said it

1 was serviceable at any other given time. I mean, those T-bolts
2 rarely have wear on them, I mean, there's not enough friction or,
3 you know, pressure on those anywhere to give it too much of a --
4 any kind of wear, so --

5 Q. Yeah.

6 A. I definitely picked it up, looked at it, it was good to go
7 and stuck it back on the slot, so --

8 Q. So you said that the platform, it was about a 10-foot ladder
9 with a standing platform, is that --

10 A. Yeah.

11 Q. -- on the aft side of the helicopter's vertical fin, on the
12 left or the right side, can you give us an idea of the
13 positioning?

14 A. Yeah, so we have two of those. We had the -- so the little
15 ladder was on -- if you're standing on the ladder, he was -- the
16 ladder's parallel with the aircraft, right, going behind the
17 horizontals right next to the blades and then my ladder was
18 standing like in line with the aircraft back behind the vertical
19 fin, right, so if you climbed up, the gearbox would be right in
20 your face, if that makes sense, and then his ladder was on the
21 tail rotor blade side, so --

22 Q. And what's the typical process that you use when hardware is
23 removed and retained during a typical removal and reinstallation
24 of components, like let's say the tail rotor gearbox?

25 A. Well, yeah, so like I kind of push them before, if I'm -- I

1 don't even know, it's probably not a good -- I can't give you a
2 good example of taking something off, looking at it and putting it
3 back together, like a gearbox, that's not -- that's not a quick
4 job, right, so the only hardware I pull off, you know, I -- and
5 Metro's big on if you take something off, inspect it before you
6 put it on the shelf. So I mean, the first thing you're doing is
7 inspecting that hardware when you take it off there, then you're
8 bagging it, tagging it, or putting it on the shelf marked with the
9 aircraft tail number, serial number and total time, which we do,
10 our part shelf over there.

11 You kind of keep everything together, like these are marked
12 pieces, like the Number 1 engine stuff, Number 2 engine stuff, and
13 we try to keep it separate on that shelf that we got in there.
14 But yeah, everything's inspected and tagged and put on the shelf,
15 so that way when you go and grab it, you don't -- you know,
16 there's no second guesses on what the parts are that you're
17 picking up, but -- yeah, like especially for a gearbox, the rotor
18 gearbox, bag and tagging hardware, putting it up on the shelf, you
19 know, after inspection, deeming it serviceable or not serviceable.
20 Q. Okay. And for hardware that's removed to facilitate other
21 maintenance that's more, in a sense, temporary or shorter term, is
22 there a formalized process for that?

23 A. Well, I mean, so if you're getting -- yeah, for myself, I go
24 to the manual, I look in the manual, right, so you -- with
25 everything. You're removing it, the manual's going to say inspect

1 hardware, you know, I can see the limitations for that, so -- and
2 usually like, for me, most of the time you remove hardware, per
3 se, like nuts, some screws, stuff like that, you're going to look
4 at it and say, right off the bat, that it needs replaced,
5 especially if it's a self-locking nut, I mean, even the little
6 ones, you can use it one time and then go to put it back on and
7 it's not going to pass the drag torque.

8 So, you know, at that point you already know I'm replacing
9 the hardware, I still bag it and tag it and put it on the shelf
10 so, yeah -- in my -- and the way Metro stands, you're going to do
11 everything per the Airbus manual, if it doesn't give you a clear-
12 cut answer, then it's going to go to, you know, best common
13 practices for that and then, yeah, you just, like I said, inspect
14 it, deem it good, if you have any question, you replace it.

15 Q. And is it typical to install things hand tight to facilitate
16 other maintenance or as a temporary measure in your --

17 A. No.

18 Q. No. Okay, so this was kind of an atypical situation in your
19 opinion?

20 A. Yeah. And that's the bad thing with that T-bolt, I wouldn't
21 say it was -- it was all going back together, it wasn't like we
22 were -- he was -- you know, you're not -- I was sort of looking
23 for -- I mean, you're prepping the install, right, so you're
24 getting it all on, you'll put all the stuff on and I mean, you're
25 -- you're just going, you know, from station to station when

1 you're working on that, right, like the blades go on, put the
2 bolts in, there's two bolts that hold the blade cuffs on, you put
3 those in, you put the nuts on and you tighten it up, you got PC
4 rods. Some guys will go through and as soon as they put a bolt
5 and a nut on, they torque it and cotter pin it right there and
6 then they move to the next one; some guys will put the bolts in,
7 put the bolt in, get it in, go get a torque wrench, come back,
8 torque both and then cotter pin them, you know. I just -- it's
9 your natural flow of things and how you're going to do the job.

10 And at this point, like I said, I put that in there to get it
11 lined up so he could get his PC rods mounted and then I'm on -- as
12 soon as I put it in there and I got this second one in there, hand
13 tight, "Hey, 193's in, go pull trim motors," so it was like I'm
14 "Okay, I'll do it." "Hey, I put this in here so you can get your
15 PC rods on." "Roger." So that's why I think like he knows and
16 he's going to get right to it as soon as the PC rods are mounted,
17 gets those done, goes right to the T-bolt, finishes it. In my
18 head. But like I said, I'm -- you know, everyone's different in
19 how we do things, so --

20 Q. Okay. Moving over to SMCs or secondary maintenance checks,
21 personally, when you perform SMCs do you only look at the items
22 that were worked on by another mechanic or do you look at
23 something beyond -- or the periphery, beyond the items worked on?

24 A. I kind of do the -- Metro will tell you to do a one-foot, you
25 know, circle of the area, kind of, you know, looking over, you

1 know, tools -- you know, anything that can be in there, maybe not
2 even their job, you just notice something else off to the side,
3 you know. Growing up in the military, I made a TI in the military
4 quality assurance, it's a three-foot circle, right, so it's
5 whatever you're looking at, you're going to look three feet around
6 it and that's for anything, you know, previous jobs, cracks,
7 whatever, you're in there, right, so no.

8 I know all of us here, we -- I mean, we do SMCs very
9 extensively, you know, I will go, "Hey, I'm putting this O-ring on
10 this part and I'm going to install it, here's the O-ring," and,
11 you know, you find -- you're going have to SMC that, look at that,
12 put it in, put it together, then when you get it to another point,
13 we're going to cover that up, "Hey, I'm doing this, I'm going to
14 cover that up," and you get them to look at it and you put it
15 together.

16 So that's what I do when I do SMCs and when I look at it, I
17 do a three-foot circle, I look at what they did, I kind of look
18 around, make sure there's nothing else, you know, obvious looking
19 at you in the face there, so yeah, I probably look at it a little
20 more than what's actually required, but --

21 MR. SHIN: I'll move it on to Josh Wade at the FAA, any
22 questions he might have.

23 BY MR. WADE:

24 Q. Hey, Adam, how are you doing?

25 A. Good.

1 Q. So Chich has covered a lot of things that I was looking at,
2 so I'm going to try to see what I had here. So let's start with,
3 in your statement you said Andrew was having difficulty, was that
4 what you said before, he was having difficulty getting the forks
5 back in and all that kind of stuff?

6 A. The forks not so much, it's just, you can -- you can put the
7 forks on the head by yourself, it's just not -- it's easier if you
8 have somebody else because when you lay them on there, I mean,
9 they go down onto the tail rotor head, but when you got to -- you
10 kind of have to tap those down with a rubber mallet and we have a
11 two-by-four we put on there to tap them down on there, there's a
12 Teflon bushing and it's super close tolerance, so you got to kind
13 of, you know, get it down on there.

14 And it's just easier to have somebody else holding on to the
15 blade just for safety purposes, in case, you know, someone
16 releases the rotor brake right when you're getting on that and it
17 turns or something like that and then, you know, someone has a
18 hold of the blade, right?

19 Q. Right.

20 A. So that portion I was helping him with. When I say -- he
21 wasn't necessarily struggling, I said no, the best way to do it,
22 but when he put the PC rods on, he put -- he mounted them outboard
23 first and then brought them around to do the inboard and when he
24 did, the sliding sleeve was turned, right, so --

25 Q. Oh, yeah.

1 A. -- it was repaired. So I was like let me turn this back over
2 onto the bellcrank and put the pin in for you to help you get
3 those blades on there. So it was just a weird -- I wouldn't say
4 weird, it was just -- like I said, if I didn't get pulled away, I
5 would've helped him complete the whole job.

6 Q. Right.

7 A. But I got pulled away. And I was just doing the steps with
8 him and helping him complete it and then I got pulled and that's
9 where -- like I said, I don't -- normally, I don't do that and
10 there was no sense of urgency or anything, I just -- he said trim
11 motor needs pulled, I knew that was my task to begin with, I knew
12 Chad was helping him, so when I got down off the ladder, I just
13 assumed those two, the ones who took it all apart, knew what
14 needed to go back together.

15 And that's -- it was a third-party thing that probably
16 shouldn't have happened like that. Probably, you know, Chad
17 should've sat down and took the phone -- I don't know. I don't
18 want to armchair quarterback that part but, you know, it's just --
19 it's not something I normally do or we even normally do here, it's
20 just the circumstances of how it all went down, that's how it went
21 down.

22 Q. And just as a follow-up to that, to your recollection, in the
23 AMM, is that -- is that a two-person task, do you remember, like,
24 you know, listing the mechanics required for each task?

25 A. I don't know, I don't --

1 (Crosstalk)

2 BY MR. WADE:

3 Q. I mean, it's okay if you don't remember, I don't expect you
4 to memorize the AMM. And where was -- when you stopped -- you
5 said you walked by, he was having difficulty, where was Chad, do
6 you know?

7 A. I was on the ladder, I was on the opposite ladder of Andrew,
8 so Andy was doing -- he was on the blade side putting the PC rods
9 on and I was on the gearbox side, you know, looking at the
10 gearbox, that side of the gearbox, and Chad was just right down,
11 right next to us on the phone, so --

12 Q. Oh, okay.

13 A. He had been trying to get a hold of J.D. that morning, J.D.
14 called him back and then he was like, "Hey, I'm going to take this
15 phone call," so --

16 Q. So Chad was talking to Airbus down on the ground?

17 A. Yeah.

18 Q. And you never talked to Airbus, right?

19 A. No.

20 Q. Do you feel like -- the other helicopter landed and you were
21 reassigned to go over to pull the yaw trim motor, was that 193,
22 you said?

23 A. Yeah, November 193, I believe.

24 Q. Do you feel like if it hadn't landed when it did, you
25 would've stayed there and probably finished the --

1 A. Yeah.

2 Q. -- full task, the safety of the bolts and all that kind of
3 stuff?

4 A. Yeah.

5 Q. Okay. And as far as how they assign work orders and tasks,
6 you said you were assigned the task to swap the yaw trim motors,
7 were you ever assigned to work the tail rotor?

8 A. Not on that job, no.

9 Q. Not on that job, okay.

10 A. Not on that work order, I was not.

11 Q. Right. Do you feel like if 193 hadn't landed, do you feel
12 like -- you know, I know you said you'd have finished the job, but
13 let's just think in terms of paperwork, with any job, if you had
14 the extra time, would you have gone down, just to back up Chad and
15 Andrew and confirm that it was in the logbook and everything was
16 written up correctly and just to kind of be a third set of eyes?

17 A. Yeah. And we -- and I'm new to Part 135, civilian aviation
18 as a whole; coming from the military, you write everything up. "I
19 removed bolt and hardware," right? Or, you know, "I removed
20 hardware from this, I," -- you know, every -- removed safety,
21 removed cotter pin, that's what I'm used to. You come to a
22 civilian aviation Part 135 and it's -- you know, you don't -- they
23 don't go that into detail with everything, right, so I -- in my --
24 like I said, my thing is it would've been -- I would've caught it,
25 that hey, the T-bolt needs to be -- you know, bellcrank wasn't --

1 however you wrote it up, bellcrank not installed, T-bolt removed,
2 whatever you wanted to say on that to make -- you know, to
3 indicate that something was not installed correctly on that or it
4 was removed from the -- from that section of the aircraft. I do
5 know the blades were wrote up because, you know, we had talked
6 about it after the fact, they re-emailed the work order, I was
7 going back and reading it, and yeah, I don't -- I don't know why
8 it wasn't wrote up.

9 I don't know if it was just an oversight, if it was, you know
10 -- you get into that troubleshooting mind and trying to figure
11 things out and, you know, sometimes you can get carried away on
12 like, I'm going to take this off and see what this -- you know,
13 inspect it, set it aside, go to the next thing, take this apart,
14 inspect it, set it aside.

15 And I think maybe -- maybe that had something to do with it,
16 there were more, you know, just trying to find issue instead of
17 taking a step back, making sure the stuff's wrote up, we're
18 removing this, we're going to put it back on, you know, all that
19 stuff, I don't -- like I said, I don't -- I don't like armchair
20 quarterbacking anybody because it could very well be me, you know,
21 me not writing something up or me not doing something like that,
22 so -- you know, like I said, I think it was just the -- we'd be
23 dealing with this feedback since December. That entire tail rotor
24 channel had been replaced from the yaw trim actuator to the yaw
25 SEMA cable, or the yaw cable, the flexible cable, the yaw SEMA had

1 been replaced, the yaw tiller actuator had been replaced, so I --
2 like I said, we've done -- tore that apart twice since December
3 and still having the same issue and that's where it's like, you
4 know, you can kind of get to that point where you start to get
5 frustrated, calling the Airbus rep and they're asking you
6 questions and -- yeah. So like I said, I -- there was definitely
7 no sense of urgency, I think it was just getting caught up in the
8 moment of trying to figure out what the problem is, and we need to
9 get, you know -- after a while, it's just -- you're loaded (ph.),
10 you know, it just starts bothering you after a while, so --

11 Q. Yeah.

12 A. -- you get into that troubleshooting mind where like I need
13 to find the problem, and I think that's where we kind of got
14 caught up and it was the troubleshooting, "I'm going to take this
15 off, look at it, okay, that's good, let's try to take this off,
16 look at it, let's get it and then we'll put it all back together,"
17 right? So yeah, I think that was the shortcoming is, it's okay to
18 have one person in a troubleshooting mind, but everyone was and I
19 think that's where everyone was kind of just trying to figure out
20 the problem and not necessarily, you know, looking at the task at
21 hand and what you're doing, so I don't know.

22 Q. So while you were helping put -- or when you were helping him
23 with the forks and you put in the T-bolt and then you went over to
24 193 to start pulling the yaw motor, was Chad on the phone during
25 that time, was he off doing, you know, dual duties and talking on

1 the phone and assigned tasks?

2 A. Well, no. If you look at our hangar, we have parts cabinets
3 that start on one side, so that's what the hangar has, so I was on
4 that other side of the parts counter, cabinets, so -- yeah, so I
5 mean, as soon as I was done with that, I went to the nose of 191,
6 made my entry in there, removing the yaw tail rotor trim, yaw trim
7 motor or yaw trim actuator, electric trim actuator, the book calls
8 it four different things, but yeah, removed it, made my -- removed
9 it out, made my yellow tags for it, removed it in a serviceable
10 condition, walked to 193, and I think we started a work order on
11 that one, pulled it off, did the same thing.

12 We did -- they installed that one on 191, I installed mine on
13 193 and then, you know, my task was get it installed, pushed out,
14 do the test flight.

15 So I got it all wrote up, got it all SMC'd, put the panel all
16 back up in there and pushed it outside and that ended up being the
17 problem. So it says, you know, you come up to a hover and it's
18 un-commanded, driving the yaw channel, I don't remember which way
19 it was going, right or left, but un-commanded drive in the yaw
20 channel, so yeah, it was the trim motor, the second one we put on
21 that aircraft, so -- yeah, like I said, I landed back on the
22 dolly, pushed it back inside the hangar there and like I said, as
23 soon as we were pushing it in, they were coming out with 191,
24 so --

25 Q. And that kind of leads in -- so I have a question about the

1 sector maintenance checks with regard to the flight crew. So in a
2 situation like this where you have a pilot coming out to do a test
3 flight or even if it's a first flight after maintenance, not
4 necessarily a test flight, do you guys usually give a pretty
5 robust turnover to the flight crew about the maintenance status,
6 like what you had just done, what the history was, you know, what
7 they should look for if a test wasn't required and/or what the
8 test encompassed, if there is a flight test required?

9 A. Yeah, to be -- I don't remember who did my SMC on that trim
10 motor. Yeah, I don't remember who did my SMC on that, but it may
11 have been -- I don't remember. But the mechanic actually did the
12 SMC on that trim motor on 193. But when we have a pilot come over
13 that's going to go test fly it, we let them know hey, this is what
14 we did, this is where it's at, you know, if they don't know where
15 it's at, we show them the general area.

16 Like for that, we already had the forward panel put up, I
17 wouldn't drop it to show him that trim motor. Most of the pilots
18 that we have around here don't have any maintenance experience,
19 they're just pilots so, I mean, if you dropped it down and showed
20 it to them, it's like, you know, not -- you know, all that stuff,
21 they're -- okay, yeah, you know. So yeah, we give them a general
22 description of what is going on and then letting them know hey,
23 this is what we have to do per the manual, you know, we're going
24 to do a ground run first and then, you know, we're going to do an
25 operational check flight, you know, and then tell them what's

1 expected in the operational check flight, so -- and then they go
2 out and check fly it.

3 Q. So I think the pilot was Chris Sitton (ph.), was the test
4 pilot on 191, I know you weren't over there, but he'd typically go
5 back to that area and put eyeballs on that? I know he has to look
6 at the gearbox oil as part of his preflight, so --

7 A. You mean for -- so which part are you talking about, for the
8 trim motor or for the tail rotor part?

9 Q. Well, I know you were on the tail rotor, but I guess I'm
10 asking your opinion, or what a typical -- like would he put
11 eyeballs on the trim motor or on the tail rotor for that?

12 A. Yeah, I mean, they -- so typically after any maintenance that
13 you do, they should be going out and doing a walk-around at the
14 very minimum, looking at it, and that's where it can get kind of
15 weird. So in the morning, say I come in and do a daily, the pilot
16 usually pre-flights the aircraft either before me or right after
17 me depending on, you know, what's going on.

18 They'll do their pre-flight and say, you know, I did a -- I
19 did do that trim motor. If I didn't, that's where this can get a
20 little -- a little weird, I guess. So if I didn't have a
21 mechanic, he would be doing my SMC as the pilot, right, I'd have
22 the pilot come over, hey, I did this, I removed this, I did this
23 and then he -- he would have eyes on that. If I had a mechanic
24 that would do it, I'd have the mechanic do the SMC, I'd install
25 everything that needed to be installed and then I would just, you

1 know, let the pilot know hey, I had this panel off to replace the
2 trim motor and then, you know, they would come around and probably
3 -- more than likely come around and look at it and say yeah, okay,
4 you know, make sure there's no tools laying around or whatever
5 else. But the requirement for a pilot to do a look after the SMC
6 is not required for Metro, that I know of.

7 Q. Okay.

8 A. And I guess that answered your question.

9 Q. No, no, that answered --

10 A. Like I said, it can be kind of weird --

11 (Crosstalk)

12 MR. WADE: Well, I asked it in kind of a roundabout way, so
13 that was partly my fault, so that answered it, that's all I got
14 for now.

15 MR. HERBERT: Okay.

16 MR. LINDBERG: Okay, thanks, Josh.

17 BY MR. LINDBERG:

18 Q. So going back to the transition from 191 to 193 when you were
19 -- when it came back in the hangar and you were told hey, let's
20 get that trim motor, is that Chad that got off the phone and then
21 told you hey, 193's back in, go do the trim motor now?

22 A. No. All I remember is Chad and Larry were both standing next
23 to each other, so I don't remember which one actually told me
24 let's get that trim motor pulled.

25 Q. Okay. So somebody -- or somebody directed you to go over

1 there and do you know, did somebody come back up the ladder after
2 you to continue the maintenance, do you remember seeing any part
3 of that?

4 A. No, I was not -- I climbed down after I, you know,
5 acknowledged with him that hey, I did this and he, you know,
6 didn't give me a thumbs up but he was like roger, got you, you
7 know, and I -- I climbed down and went straight and got tools and
8 went to the front and I didn't -- you know, as soon as I walked
9 away from that job, that job, to me, is out and I need to focus on
10 what I got going on now, so I didn't -- like I said, I didn't pay
11 any thought to that process after I walked away from it, so --

12 Q. Understood. So I think you had stated earlier that the
13 T-bolt was laying on the platform or the top of the ladder there
14 and it was already uninstalled or removed, correct?

15 A. Yeah, when I got up on there. Yeah.

16 Q. And the only thing that you had done to help facilitate the
17 reinstallation there was just put it back in and finger tight with
18 two bolts?

19 A. Yeah.

20 Q. Would you expect, if this were you doing this task from start
21 to finish, would you expect that there would be a write-up done
22 for the removal of that T-bolt?

23 A. Yes. For that situation, yes.

24 Q. And if there had been a write-up done for that removal, would
25 you expect that maybe this wouldn't have happened because that

1 write-up would have allowed more of a transaction on this
2 installation?

3 A. Yes.

4 Q. Okay.

5 A. And that's what I kind of was getting to earlier about, you
6 know, what I'm used to writing up in the military and to what it
7 is now, like -- you know, a normal write-up that I would see for
8 that area, like if you were doing an 800-hour inspection on that,
9 you would just see tail rotor bellcrank removed, right, and then
10 that covers the hardware and the bellcrank being removed from the
11 aircraft, right?

12 So in that situation you would've just said, yeah, tail rotor
13 bellcrank T-pin removed to facilitate other maintenance. Yeah, I
14 -- yeah, I wasn't a part of that. So like I said, on my end that
15 was an assumption on me that it was wrote up, they both understood
16 what was out or needed to go back together, so --

17 Q. Okay. So as a result of this accident, have you changed any
18 of your personal maintenance practices or do you have any
19 suggestions for how Metro could change their practices to prevent
20 something like this?

21 A. We talked about, you know, how we do write-ups, which -- in
22 my understanding, just from talking to other people, and I've met
23 all kinds of people that have worked all over the world, but
24 Metro's one of the more strenuous paperwork companies out there.
25 but even that being said, everyone makes mistakes, I mean, in

1 aviation, as long as you're turning a wrench, it's going to happen
2 to you at some point in time, a mistake is going to happen and
3 that mistake is going to be worse for some than it is others, so
4 we did talk about it. And I know, for me and the way that I work,
5 I would much rather go back to -- not as -- not as much as the
6 military way but, you know, I removed this to facilitate and I
7 removed this to facilitate other maintenance or I removed this to
8 facilitate other maintenances, you know.

9 If I got to have 20 "facilitate other maintenances" in there,
10 then so be it, that's what I'm going to do, so -- yeah. Yeah,
11 that's -- and like I said, we all talked about it, we all agree it
12 was a one-time miss, that it's not like us to have, you know, that
13 -- that kind of a miss, I mean, we're usually pretty locked up
14 tight on stuff like that and yeah, it just sucks. It sucks.

15 MR. LINDBERG: Yeah, I understand.

16 Chich, back to you, if you have anything.

17 MR. SHIN: Yeah.

18 BY MR. SHIN:

19 Q. You know, just building on what you're saying about, you
20 know, mistakes happen, it's just a matter of time, you know,
21 obviously our -- this investigation is to determine -- you know,
22 we, as an organization, put in safety barriers to make sure that
23 when a mistake happens, you know, it gets caught or whatnot. In
24 this case, we're trying to identify what safety barriers can
25 exist, you know, to prevent, like you mentioned the eventual

1 mistake that happens before it gets released out into operation.
2 That being said, does Metro teach a process to hand off or debrief
3 work that's in progress when one mechanic leaves and another takes
4 over?

5 A. Yes. I'm -- yes. So if -- specifically, if I was doing --
6 if I was tearing a tail rotor apart and, you know, I get to a
7 point and I go on vacation, right, which just happened to me, I
8 just got back from a vacation, I started the tail rotor job for a
9 300, 400-hour on this, which is, you know, checking close
10 tolerance, bolts, amongst other things, right?

11 So I had it apart and I had -- I was putting new nuts on and
12 all that other stuff, right, so I had my 81-30s and stuff all
13 marked to let -- you know, wrote in there what it's for, did all
14 that stuff, and I went and got my supervisor, Larry, and Chad, I
15 brought them over, hey, if this goes back together before I come
16 back, here's all the parts, here's where I'm at and I give them
17 that handoff.

18 We all pretty well do that handoff, there's not -- I'm going
19 to take it apart and just leave or, you know, not tell somebody
20 what -- you know, what all's going on and then I -- you know, I
21 went over there, showed them in the logbook where, you know, I
22 removed this, removed this, removed this. So yeah, the handoffs
23 are there and there's always, you know, more than enough
24 information than you need to finish the job and putting it back
25 together. And like I said, ultimately, if you remove something

1 you should go to the task at hand, anyway, and go through the
2 task, see if every one of those points have been met before you
3 even, you know, really start putting anything back together, so --
4 and if you can't verify it, then you go back, do what you got to
5 do to verify it, so -- and yeah, that's pretty well taught around
6 here, you know, that I've seen, so --

7 Q. So what you just described was a handoff for something that's
8 more intensive maintenance, in a sense. For something that's
9 small, like this T-bolt, when you went up to the ladder and saw it
10 just on the platform, do you -- did you get a handoff of some sort
11 or background information as to what's been done on the controls?

12 A. Yeah, that is why I go back to that third-party thing. Like,
13 I don't know what conversations those two had with each other, I
14 was just -- I'm in between jobs, right, so I finished up what I
15 had to do on that aircraft, made sure write-ups are all good to
16 go, waiting for this one to come in, so I didn't -- I was just
17 asked to give him a hand, there was no, you know -- he's putting
18 those tail rotor blades on, give him a hand.

19 And in the shop, sometimes it's just that easy, like hey,
20 he's struggling over there, give him a hand, right, and you just
21 go over, give him a hand and then you move on to the -- you know,
22 back to what you were doing. So that whole part of it, to me, is
23 not abnormal in any shop that I've ever been in and any of their
24 practices. I don't think there's any necessarily bad practice to
25 that and just, like I said, this situation and the circumstances

1 that happened, resulted in a bad situation but, to me, nothing was
2 abnormal about it and -- yeah.

3 Q. Okay.

4 A. I just know on my end, it was -- I should've -- I know
5 better, I need to verify it, you know, and go to the logbook, look
6 at it. If I'm going to put something on, put it on, don't -- you
7 know, don't only put it on half way, you know, it's just some
8 stuff like that, that you learn over time after you see so much
9 stuff that you're like okay, well, I'm not going to do that and
10 I'm not going to do that, you know, so -- yeah, that's the -- I
11 guess the onus I put on myself for that is, you know, that part of
12 it, but --

13 Q. And going back to when you were called off from completing
14 the work with the T-bolt and the controls to go to 193 to pull the
15 trim motor from it, is there a reason why you left mid-job, did
16 someone say you need to pull the trim motor now or I guess, you
17 know, why didn't you complete the job with the T-bolt versus just
18 leaving it as is and giving the verbal handoff?

19 A. Yeah, it -- yeah, so like I said, I -- yeah, once the blades
20 got on, I was just standing there, you know, watching him put it
21 together, waiting for my aircraft to come in because I already
22 knew what my job was on that, (indiscernible) command, right? So
23 I was watching him do it and that's, you know, where he's trying
24 to put the PC rods on, "Hey, let me help you put that in," and as
25 soon as it's like in and I'm on that last one, "Hey, 9-3's in the

1 hangar, let's get that moved," so it was like -- it all happened
2 at once, it was -- there was no -- you know, it wasn't -- and that
3 was the other thing, too, is like I wasn't even assigned to that
4 job, I wasn't part of it from the teardown, you know, up to that
5 point I was literally "help put the blades on" and then that was
6 -- yeah, help him put it on and then put the T-bolt in, yeah.

7 Like I said, when I put that in there it was more of I was letting
8 him know hey, I put this in there so you can line it up --

9 Q. Yeah.

10 A. -- and then -- you know, if I would've stayed, if I would've
11 just been like, "Hey, give me five minutes, let me finish doing
12 this," then I -- yeah, I could've probably prevented most all of
13 this but, you know, me, in my head, giving him that handoff, "Hey,
14 I'm putting this T-bolt in for you," he already knows that it's
15 out and it needs to get put it back in and I'll be going to the
16 other job, so that's -- you know, it's -- I guess you could argue
17 it both ways, you know, I made it -- it's not like I just put it
18 in and I didn't say anything, you know, "Hey, I'm putting this in
19 there," so -- yeah.

20 Q. And is it typical for you to help out in jobs that you're not
21 formally a part of, like in this case?

22 A. It just depends, I mean, like if they're struggling with
23 something heavy or they can't line it up all that good and they
24 just need you to like hey, hold this real quick, you know, there's
25 never a -- I mean -- and sometimes you just have a two-person job

1 where you and another guy are on an engine install, an engine
2 install, right, so you two are doing that one job, right. And
3 that kind of goes back to what we're going to write up and, you
4 know, the more intrusive things. So like on an engine install on
5 Part 135, like I say, "engine installed in accordance with,"
6 right, and I've covered my bases on that and then you're going to
7 say, you know, I certify this aircraft is in airworthy condition.

8 And that's where we're going to go back to where you -- and I
9 guess, if I do it then, you know, I'm going to SMC the work but
10 also helped you install it, too, so then you're not necessarily
11 getting a good handoff or a good second set of eyes looking at the
12 job because you both installed the part on that.

13 So that's the one thing that we're kind of looking at is
14 you're going to get someone who wasn't even a part of that, of the
15 whole deal to come look at it, you know, give it a good look-at
16 and then making sure that -- you know, I don't know, for example,
17 saddle mount hardware is installed, side load mount hardware is
18 installed, aft mount of hardware is installed, you know, kind of
19 going down, hitting every one of the points on the write-up so
20 that way we are verifying nothing's getting missed, so -- and then
21 we're putting -- there's no requirement for that, that's what
22 we're putting on ourselves here and that's what we already talked
23 about to do, so --

24 Q. And in your experience at Metro, do you know of other
25 instances in the past where someone hand-tight installed hardware

1 but it was caught consequently?

2 A. I've only been here 18 months, so I haven't really been a
3 whole lot of places, I've only been here in Indiana about -- I
4 mean, in the Army, yes. But, I mean, I've heard -- I've seen it
5 and I've heard it, you know, so --

6 MR. SHIN: Okay. That's all the questions I have, Josh.

7 MR. LINDBERG: Josh Wade, anything else to follow up with?

8 MR. WADE: Yeah, I just have one more question.

9 BY MR. WADE:

10 Q. You were a base out of service on that day, right, when you
11 were working 191?

12 A. Yeah, we had gone -- I think we had gone out of service on
13 IN1 to troubleshoot that trim motor for 193 --

14 Q. Right.

15 A. -- because 193 was in service for 1 -- or for IN1.

16 Q. But would either helicopter, would they have used either
17 helicopter to get you back in service or would they be focusing on
18 getting 191 back in service?

19 A. Yeah, if I remember correctly, 193 was coming up on
20 inspection, so it was getting close to either an hour or a
21 calendar inspection, I don't remember which one, so the goal was
22 to get 191 back into service for IN1. So that was the goal. If
23 we couldn't get it, then we were going to put 193 back in service
24 for it (ph.) and then just try to figure out what we were going to
25 do, whether we needed to take -- you know, ultimately take it out

1 of service and just do the inspection and remain out of service
2 for that.

3 Q. So the idea was 193 was coming up on inspection, so it was
4 going to -- not work to put it back in service, so you were okay
5 on the parts off that, get 191 back in service and get it up in
6 the air, get the base back in service.

7 A. Right, so 193 would've stayed, you know, aircraft out of
8 service for removal of the yaw trim motor, to put 191 in service
9 of IN1, I guess.

10 MR. WADE: All right, that's all I have.

11 MR. LINDBERG: Great, thank you. I don't have any other
12 questions so, Adam, unless you have questions for us, I will end
13 the recording here.

14 MR. HERBERT: Sounds good, thank you.

15 (Whereupon, the interview concluded.)
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CERTIFICATE

This is to certify that the attached proceeding before the

NATIONAL TRANSPORTATION SAFETY BOARD

IN THE MATTER OF: ACCIDENT INVOLVING EUROCOPTER
 DEUTSCHLAND AT THE PURDUE UNIVERSITY
 AIRPORT IN WEST LAFAYETTE, INDIANA
 ON MARCH 6, 2024
 Interview of Adam Herbert

ACCIDENT NO.: CEN24LA128

PLACE: via videoconference

DATE: April 3, 2024

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.

A black rectangular box redacting the signature of Karen D. Martini.

Karen D. Martini
Transcriber

UNITED STATES OF AMERICA

NATIONAL TRANSPORTATION SAFETY BOARD

* * * * *

Investigation of: *

*

ACCIDENT INVOLVING EUROCOPTER *

DEUTSCHLAND AT THE PURDUE *

UNIVERSITY AIRPORT IN WEST * Accident No.: CEN24LA128

WEST LAFAYETTE, INDIANA *

ON MARCH 6, 2024 *

*

* * * * *

Interview of: ANDREW NEWMAN, Maintainer
Metro Aviation

via videoconference

Wednesday,
April 3, 2024

APPEARANCES:

JOSH LINDBERG, Senior Aviation Accident Investigator
National Transportation Safety Board

CHICH SHIN, Aviation Engineering Investigator
National Transportation Safety Board

JOSH WADE, Aviation Safety Inspector-GAM
Federal Aviation Administration

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I N T E R V I E W

(11:00 a.m.)

MR. LINDBERG: The recording is started. The date is April 3rd, 2024 and the time is 11 a.m. Central. My name is Josh Lindberg, National Transportation Safety Board, investigator-in-charge for this investigation. With me today is Chich Shin, helicopter engineer for the NTSB, and Josh Wade, FAA inspector-in-charge.

This interview is of Andrew Newman of Metro Aviation. The purpose of the interview is to learn about your recollection regarding the maintenance work performed on the BK117, N191LL, and your job as a maintainer with Metro Aviation.

Please be advised of the following: you're allowed to have one representative of your choosing present during this interview, but they cannot answer questions for you. I see you do not have anybody with you. Are you declining representation?

MR. NEWMAN: Yes.

MR. LINDBERG: Understood. NTSB investigations are non-punitive and we're only interested in gathering the facts regarding this accident and trying to prevent reoccurrence. This virtual interview is being conducted with video capability, however, only the audio is being recorded. That will be produce -- that will produce a transcription, and that transcription will be provided to you for review before it is included in the public docket for this investigation. Do you have any questions before

1 we begin?

2 MR. NEWMAN: None at all.

3 MR. LINDBERG: Great. I'll turn it over to Chich Shin to
4 begin with questions.

5 MR. NEWMAN: All right.

6 INTERVIEW OF ANDREW NEWMANS

7 BY MR. SHIN:

8 Q. Andrew, can you go over the professional certifications you
9 have and generally about when you received them?

10 A. Yeah. So I'm a -- just the FAA Airframe and Powerplant
11 license, and I received those, I believe it was October of 2020 --
12 it would have been '21.

13 Q. Okay. And when did you start at Metro Aviation?

14 A. That following year, so it was January 2022.

15 Q. Okay. And what's your current position at Metro?

16 A. Hangar mechanic for heavy maintenance.

17 Q. And what was your work history before Metro?

18 A. Before Metro I went to an A&P school, but before -- so work
19 strictly was just the Marine Corps, and I worked on helicopters in
20 the Marine Corps as well for five years there. And then got out
21 of the Marine Corps, went to A&P school, graduated and then
22 started Metro.

23 Q. Okay. And what's your work experience history on the BK117
24 model?

25 A. Strictly when I was with Metro. That's the only time I've

1 ever touched that aircraft.

2 Q. Do you work any other models at Metro Aviation?

3 A. I do not, no.

4 Q. And you had mentioned you were in the Marine Corps before;
5 what's your work experience on other helicopter models?

6 A. We worked on the Huey, the Y and the November -- the four-
7 blade two-blade, and then also the AH1Z and AH1W, which is the
8 like the Cobra, more -- their attack helicopter, I guess.

9 Q. Okay. And currently at Metro Aviation, what's your typical
10 work schedule like?

11 A. Typically it's 8 to 4, yeah.

12 Q. How many days a week?

13 A. Sorry, Monday through Friday.

14 Q. Okay. And the week that maintenance was performed on the
15 accident helicopter, that included March 6th, what was your work
16 schedule during that time? Same or different, I should say, from
17 your typical work schedule?

18 A. Very similar. I know we started up at 8. I'm not 100
19 percent sure how long that day lasted, but it wasn't anything
20 abnormal. It was right around that 4 mark.

21 Q. Okay. And do you remember feeling fatigued at all that day?

22 A. Not at all.

23 Q. And around that timeframe, anything going on in your personal
24 life that you think were distractions at work at the time?

25 A. No. No, everything's going great.

1 Q. Okay. Along with 191, were you working on any other
2 helicopters in parallel during that week?

3 A. I was not.

4 Q. So only 191?

5 A. Yes.

6 Q. Okay. Any -- do you feel any time pressures that week at
7 work, in terms of trying to get 191 back into service?

8 A. No, no. No, I wouldn't say pressures, no.

9 Q. Okay. No pressures, internal or external?

10 A. No, I wouldn't say so.

11 Q. Okay. And how would you characterize your work environment
12 in terms of both -- the work environment, do you feel it's high
13 pressure, calm, toxic, friendly? In general, what do you feel
14 about your work environment?

15 A. It's a -- for me, I feel like it's a good kind of mix. Like,
16 trying to keep it light but at the same time realizing what you're
17 working on. Yeah, I mean, we're very goal-oriented. Try to talk
18 about the aircraft while we're in -- at work and if it's -- a
19 really good environment here that we have.

20 Q. Okay. And do you feel like you have the support or backing
21 of your company of your work --

22 A. Definitely. Definitely.

23 Q. Okay. So in the statements that you had provided after the
24 accident to Metro, which we got a copy of and were able to review,
25 you had mentioned that you were working on the blade cuffs and the

1 pitch change links on March 6th?

2 A. Yes.

3 Q. Do you recall about where you were in terms of, you know,
4 next to the vertical fin, on the left, to the right side of it,
5 etcetera, when you're working on the components on the tail rotor?
6 Can you describe --

7 (Crosstalk)

8 Q. -- work position?

9 A. I was on the left side of the aircraft. So if the driveshaft
10 was coming out of the (indiscernible), I was working kind of
11 facing that on the ladder, kind of right up on it.

12 Q. Okay. And you had mentioned that you had removed the T-bolt
13 and hardware to facilitate that maintenance?

14 A. Yes.

15 Q. Did you do that on your own or were you directed to do that?

16 A. I was told to do that, yes.

17 Q. Okay. Do you remember by who?

18 A. It was Chad, I believe.

19 Q. Okay. And what's your typical process for when you remove
20 hardware? Do you normally bag and tag it, put it in a cup, lay it
21 down, etcetera?

22 A. We've been avoiding cups. They spill easy so we've been
23 doing bags. And we have the tag on the bags, so we typically
24 write it on there. What it is or anything like that.

25 Q. Okay. And in this case with the T-bolt under the hardware,

1 do you remember what you did with that?

2 A. We work off of carts, and because in my mind, I envision
3 this being a very quick in and out, I believe I put it right there
4 on the cart, just right adjacent to where we're working, with some
5 tools that I was working with.

6 Q. Okay. And you did not install the T-bolt afterwards,
7 correct?

8 A. I did not, no.

9 Q. Okay. And it was Adam Herbert that did the installation?

10 A. Yes. I believe that's what he said, yeah.

11 Q. Okay. Do you recall him telling you that he was putting the
12 T-bolts into the sleeve while you're doing your work?

13 A. I don't specifically remember him saying that. I had talked
14 to him about what happened, and Chad what happened, and I have
15 full faith in them and trust in them and they both said that it
16 had happened, that he had said that, so I do believe he did. But
17 I can't tell you one hundred percent that I remember it, but I do
18 believe that he did, yes.

19 Q. Okay. And is there a typical process that's used at Metro
20 for when hardware is removed to facilitate other maintenance
21 actions when it's done fairly quickly, per se, versus something
22 that's more intensive?

23 A. It doesn't change. That's where I feel that I messed up in
24 this instance. It gets written up and if you're working on a work
25 order, a work order. If not, then in the logbook, but either way

1 it gets written up, therefore, it would get installed in SMC,
2 but --

3 Q. And I get -- in this scenario, would it have been your
4 responsibility to do the writeup, or would you have told someone
5 else to do the writeup and the work order, or the removal of the
6 T-bolt?

7 A. I feel as if, you know, I did the removal, therefore, I
8 should have written up. During this, I guess this hangar -- this
9 helicopter and the maintenances that it was in, Chad had been
10 doing most of the removals. So I don't know, you know,
11 subconsciously if I thought that he had already done it or it was
12 already getting done, I'm not sure, but I would have been the one
13 doing it, though. Should have been the one doing it.

14 Q. Okay. In your experience at Metro Aviation, is it typical to
15 install hardware hand tight when it's facilitating other
16 maintenance being done?

17 A. Typically, only if it's the -- if the maintenance manual
18 calls for it, then there's certain stuff done that says, hey, you
19 know, install hand tight and later on down in the (indiscernible),
20 it would say, you know, to torque that and safety it if need be.
21 But typically, if we're just kind of thrown in, I wouldn't say as
22 -- that's a normal thing to do.

23 Q. Okay. And is it typical for -- in this case since you did
24 the removal of T-bolt, is it typical for someone else to have done
25 the installation, or is it typically assigned to one mechanic to

1 see that whole process through?

2 A. I would say it's more typical for one mechanic to kind of see
3 it through. Although there are instances, whenever -- there's
4 other times where I may have removed something, inspected it,
5 written up what needs to be written up, and someone else comes
6 along and installs that. But I would say more often than not, the
7 same mechanic does it.

8 Q. Okay. And when you normally perform a SMC, or a secondary
9 maintenance check, do you only look at the items that were worked
10 on by another mechanic, or do you typically look in the periphery
11 around the area that was being worked on?

12 A. So for me, as my kind of personal thing I do, in the Marine
13 Corps we always use a 2-foot rule, and it's basically any -- a 2
14 feet radius all around, whatever the person looked at or is
15 working on, we inspect that as well. So I carried that on to
16 Metro as well, mostly because anything could have got damaged.
17 Maybe they, you know, maybe they dropped their wrench and it's --
18 it dented something, or the arc swing of the wrench hit something.
19 So I typically look beyond that.

20 Q. Okay. But in terms of what's being taught at Metro to you?

21 A. I don't know the exact rule but I do believe they do have a
22 surrounding area, kind of like encompassing statement in there as
23 well.

24 MR. SHIN: I'll hand it off to Joshua at the FAA.

25 MR. NEWMAN: Okay.

1 BY MR. WADE:

2 Q. Hi, Andrew.

3 A. Hey, Josh.

4 Q. And you were assigned to this work order, right? You were
5 specifically assigned to this task?

6 A. Yes.

7 Q. Okay. You and Chad?

8 A. Yes.

9 Q. Okay. And you -- it's your initials on the mechanic sign off
10 before the SMC?

11 A. (Indiscernible).

12 Q. After Adam, and they installed the T-bolt, he was told to go
13 to 193 to pull the yaw trim motor, right?

14 A. I believe he was, yes. I think he was working on both, yeah.

15 Q. And that's when he told you that he installed it and that he
16 left or whatever the -- now, in your statement, you said that you
17 can -- you finished the work. It says you had finished installing
18 the mounting forks and then you were told to go remove the Ford
19 belly panel and install the yaw trim motor, pulled off --

20 (Audio lapse)

21 A. -- I couldn't -- I can't tell you for sure, though.

22 Q. Okay. So one of them did? And then at this -- when you went
23 to pull the belly panel, was Adam already over on 193 pulling the
24 trim motor?

25 A. Yes.

1 Q. Like did -- you didn't leave at the same time? He left and
2 then you left after him?

3 A. Yes. He left, then I think I finished up with the
4 installation of that -- the (indiscernible) with the head, and
5 then I went after he left.

6 Q. How long do you think that was? Like, 5 minutes, 20 minutes,
7 10 minutes, 30 minutes?

8 A. At that point, I think I was installing his change links, so
9 maybe another 20 minutes or so?

10 Q. Okay. That's all right. I'm just asking for a ballpark.
11 I'm just trying to get the sequence in my head. So 193 lands,
12 Adam's helping -- stops by and helps you by putting in the --
13 attaching the pitch control to the swashplate, and then he's told
14 by --

15 (Audio lapse - technical difficulties)

16 A. -- I can't tell you 100 percent what I was thinking then, but
17 I don't remember him really saying it, so I'm guessing I was more
18 focused on the head at that point than kind of what he was talking
19 about, and just didn't occur to me that hey, he did something over
20 there that I need to look at, yeah.

21 Q. And you said you pulled the T-bolt out initially, right?

22 A. Yes.

23 Q. Okay. All right. It -- was Chad -- when you were -- when
24 Adam stopped by and -- to assist and then he put in, he had put in
25 the T-bolt and then you were finishing up, was Chad on the phone

1 on the ground the whole time with Airbus? Or do you feel like he
2 was a facilitating supervising so to speak, or?

3 A. I don't remember him on the phone very much at all.

4 Q. Okay.

5 A. Yeah. I think he called, maybe right after we carried out
6 the -- that the cuffs were not out -- around, he may have called
7 then, but I don't remember him being on the phone --

8 Q. To find out the next step?

9 A. Yup.

10 Q. Yeah. The -- he was -- was he -- I know he's a supervisor,
11 but was he assigned to 191 with you? Is that how it works, or are
12 -- were you assigned it by yourself?

13 A. I think we all were kind of assigned to 191. I mean, it --
14 the fact that 193 came in, I guess changes some stuff as far as
15 that goes, but I think the only people that touched 193 was Adam.
16 So I guess me and Chad were still assigned to 191. I guess --
17 it's not like, it's -- sorry, assigned isn't like, terminology
18 that I am familiar with, but like, as far as --

19 Q. Yeah, that's fine.

20 A. -- what we're working on, I would say both of us were.

21 Q. Okay. I think for now, that's all I got. Chich asked a lot
22 of good questions, so I got a lot of info from that, so.

23 MR. LINDBERG: All right. Sorry, guys, I'm working through
24 some technical difficulties on my end. But Chich, I'll let you
25 continue to go. I think my computer is pulling back up. I'm just

1 running off my phone right now.

2 MR. SHIN: Okay.

3 BY MR. SHIN:

4 Q. Do you know if -- have you been taught at Metro any process
5 to hand off or debrief work at the progress when it's going from
6 one mechanic to another?

7 A. As far as any like, formal teaching, I don't believe so. We
8 have a pretty good pass off, kind of the way we do things. I
9 mean, we, we'll take each other over there and physically point
10 and show people what we've done, what we haven't done. Pull the
11 manual, show kind of what step we're on, and it's a -- the general
12 rule that I have and other people have at the shop, to go back
13 several steps and then work from there. Yeah, but as far as like,
14 a formal class, I would -- I don't think we do.

15 Q. Okay. So you guys are leveraging primarily your past
16 experiences and essentially your work culture --

17 (Crosstalk)

18 A. -- hangar --

19 Q. Okay. So once Adam had installed the T-bolt on 191 and then
20 was going to work on 193 once it came in, do you recall witnessing
21 a hand off from him to someone else? The work that he had done
22 while on 191?

23 A. I do not, no.

24 Q. Okay. And is it typical for you to get assigned work on an
25 aircraft that you're not necessarily part of in the work order?

1 A. No, not very typical. I would say the only time that that
2 would happen would be kind of this instance with the turn motor,
3 if we're trying to camp hard (ph.) off the -- troubleshoot further
4 with a system or whatever we're doing. But it's not typical very
5 much at all.

6 Q. Okay. And do you know if while you're -- with your time at
7 Metro, of other instances where someone might have installed
8 something hand tight to facilitate other maintenance that's being
9 done, but that was subsequently caught in either a SMC or other
10 inspections before it was returned to service?

11 A. I can't recall anything like, as far as if it was kind of
12 like, missed at first and then caught, I can't recall anything
13 like that. There are some times where we -- they're -- I mean,
14 for instance, for the tail rotor, if we're going to have to rig
15 this tail rotor system. There's definitely times when we put in a
16 bolt, the -- you know, they put bolt hardware (ph.) the nut, and
17 then we'll use some type of flag or something like that to flag
18 that part and say, hey, this is still loose. But also, it's --
19 nine times out of ten, it's written up in the work orders as well
20 as being removed.

21 MR. SHIN: Okay. I'll pass it to Josh Lindberg since he's
22 back online with us.

23 BY MR. LINDBERG:

24 Q. Thank you. As a result of the accident, have you changed any
25 of your personal maintenance practices or have you -- do you have

1 any suggestions for Metro Aviation practices to be updated,
2 changed, whatever?

3 A. I carry a little notebook now strictly of my removals. So I
4 can go back, basically if I have a job where, you know, it takes
5 me several different bolts to remove, I can mark those down. Once
6 I get off the helicopter, get up the ladder, whatever it is, I can
7 go over to the work order, write those up, if they haven't been
8 written up, but I can at least look at those and look through to
9 make sure that they're covered by a work order item.

10 Also, I don't -- I typically try not to -- what would I say,
11 kind of let people talk to me while I'm working, without being
12 rude, I guess. If it is important, I need to stop what I'm doing,
13 give you full focus, and then keep going with what I'm doing. But
14 at that moment, what I'm doing is more important.

15 Q. Sure. Do you think that this issue could have been prevented
16 had the write up been done for the removal of the T-bolt?

17 A. Definitely, 100 percent.

18 Q. And do you think that a secondary maintenance check should
19 have caught the fact that this -- these bolts that installed, the
20 T-bolt, were not safetied (verbatim)?

21 A. Yes. If it was written up, it would have warranted an SMC,
22 and if the SMC would have been performed, it 100 percent would
23 have been caught, I think.

24 Q. Okay. And then going back to something I think you stated
25 earlier about your position near there or at the tail rotor, did

1 you say you were on the gearbox side, or the tail rotor side?

2 A. The tail rotor side. I was -- sorry, I was -- I explained it
3 weird. Yes.

4 Q. Okay. So you were on the blade side.

5 A. Yes.

6 Q. And there was another ladder on or platform on the gearbox
7 side that would have had another mechanic over there?

8 A. Yes.

9 Q. Okay, understood. That's all I've got for now.

10 MR. LINDBERG: Josh Wade, do you have anything else?

11 MR. WADE: I do not. I don't have anything else.

12 MR. LINDBERG: Chich, one more time?

13 MR. SHIN: No, I think I have the information that I was
14 looking for, so thank you.

15 MR. LINDBERG: Great, all right.

16 Andrew, if you don't have any questions for us, I will stop
17 the recording here.

18 MR. NEWMAN: Okay.

19 (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: ACCIDENT INVOLVING EUROCOPTER
 DEUTSCHLAND AT THE PURDUE UNIVERSITY
 AIRPORT IN WEST LAFAYETTE, INDIANA
 ON MARCH 6, 2024
 Interview of Andrew Newman

ACCIDENT NO.: CEN24LA128

PLACE: via videoconference

DATE: March 3, 2024

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.

A black rectangular redaction box covering the signature of Angela Allen.

Angela Allen
Transcriber