

Attachment 22. Main Rotor Area Mechanic Follow-up Transcript

DCA12MA020 Maintenance Factual Report

UNITED STATES OF AMERICA

NATIONAL TRANSPORTATION SAFETY BOARD

* * * * *

Investigation of:

*
*

SUNDANCE HELICOPTER ACCIDENT
NEAR LAS VEGAS, NEVADA

* Docket No.: DCA-12-MA-020
*
*

* * * * *

Interview of: CLINTON CAMPBELL

Sundance Helicopters
5596 Haven Street
Las Vegas, Nevada

Wednesday,
January 11, 2012

The above-captioned matter convened, pursuant to notice.

BEFORE: KRISTI DUNKS
Senior Air Safety Investigator

APPEARANCES:

KRISTI DUNKS, Senior Air Safety Investigator
Maintenance Group Chair
National Transportation Safety Board
NTSB Western Pacific Region
PO Box 3493
Butte, MT 59702
406-494-2640

MARYAM ALLAHYAR, Investigator
Human Performance Group
National Transportation Safety Board

GARY CAMPBELL
Federal Aviation Administration

KYLE REYNOLDS
Sundance Helicopters

I N D E X

| <u>ITEM</u> | <u>PAGE</u> |
|--------------------------------|-------------|
| Interview of Clinton Campbell: | |
| By Ms. Dunks | 5 |
| By Ms. Allahyar | 17 |
| By Ms. Dunks | 18 |

I N T E R V I E W

1
2 MS. DUNKS: Okay. So just like last time, did you want
3 to have a representative here or you have Kyle, I guess, is --

4 MR. CAMPBELL: He works.

5 MS. DUNKS: Okay. So, first off, if you could just tell
6 us your full name please, no need to spell it.

7 MR. CAMPBELL: All right. Clinton Joseph Campbell.

8 MS. DUNKS: Okay. All right. And you work as a
9 mechanic here at Sundance?

10 MR. CAMPBELL: Yes.

11 MS. DUNKS: All right. So we spoke with you before and
12 I know it's been a while since we did speak with you. So, you
13 know, if you can't remember something, just let us know. So we
14 just had a few kind of based on, you know, what we've kind of
15 learned about procedures and processes, just had a few additional
16 questions in looking at the interview summaries before, kind of
17 some follow-up stuff to supplement what we got before. You know,
18 some of the questions we just didn't ask. Others we just wanted
19 additional information. So --

20 MR. CAMPBELL: All right.

21 MS. DUNKS: And again just like last time, if you have
22 any questions, just please let us know.

23 MR. CAMPBELL: Okay.

24 MS. DUNKS: And do you have any questions before we get
25 started?

1 MR. CAMPBELL: No.

2 MS. DUNKS: Okay. All right. And I think you remember
3 everyone in the room. I'm Kristi Dunks.

4 MS. ALLAHYAR: Maryam Allahyar.

5 MR. G. CAMPBELL: Gary Campbell from the local Flight
6 Standards.

7 MR. REYNOLDS: Kyle Reynolds.

8 INTERVIEW OF CLINTON CAMPBELL

9 BY MS. DUNKS:

10 Q. Okay. So the first thing I wanted to go over, and I
11 know we talked about this before, but you said you had done the
12 work on the fore/aft servo --

13 A. Yes.

14 Q. -- and completed it. You said it was removed when you
15 arrived from the helicopter? Or is that --

16 A. No.

17 Q. Okay. So --

18 A. I removed it.

19 Q. Okay. So can you kind of go through that process in
20 real detail as to, you know, the removal of that component, what
21 you did and then the reinstallation?

22 A. All right. My first step in taking off the servo --
23 everything is done by the book.

24 Q. Okay.

25 A. I un-cotter key the bolts, un-torque them, remove the

1 bolt, the upper and lower attachment bolts. I loosen the
2 hydraulic lines, take them off, cap them or bag them so nothing
3 gets in them. Then the magnet gets taken off and secured so it
4 doesn't dangle. At that point, the servo is loose to -- or I
5 disconnect the input rod. At that point the servo is loose and
6 able to come out of the helicopter.

7 From there, it's a few steps of taking off the
8 accumulator from the servo, cleaning it, making sure it's
9 serviceable still. I also measure the ball end on each side and
10 compare them to the measurements in the book, making sure they're
11 the same, you know, of a new servo. I transfer the ball ends that
12 I deem serviceable back onto the ends, and in that case, the top
13 one, I condemned it. So I checked a new one out of stock and put
14 it on, to the measurements in the book and I verified them with
15 the measurements I took before I disassembled the old one.

16 Q. Okay.

17 A. I put new O rings on the accumulator on both sides so
18 hydraulic fluid didn't leak out, secured those down with a torque,
19 safetied them, had them checked, and I checked the ball ends
20 making sure those are good, torqued those down as well, safetied
21 them, get them checked.

22 At that point the servo is ready to go back on the
23 helicopter. So I put it back -- take it back up, secured the rod
24 end, both in the upper -- the lower rod end into the main gear box
25 and the upper into the non-rotating of the swashplate. I

1 reconnect the hydraulic lines, torque them down so no leakage
2 occurs, reconnect the input rod, put the bolt and nut back
3 together, torque that down, cotter key it. At that point, that's
4 all secure. So then I go back and make sure that the upper and
5 lower rod ends are torqued and cotter keyed. I believe that's it.
6 And, of course, it's all done according to the maintenance manual,
7 so --

8 Q. Okay. All right. And do you have the manual sitting
9 there on the workbench or where do you usually have that?

10 A. Normally it's right adjacent to my work area. If for
11 some reason we're low on tables or anything, it's on the table
12 near the -- where all the books are and I walk back and forth.

13 Q. Okay. All right. And the hardware on the upper and
14 lower, the input rod hardware, how did you verify it? It looks
15 like based on the maintenance records that all of that was reused?

16 A. The upper and lower, yeah, everything was reused.

17 Q. Okay. And how do you determine that, that that's okay?

18 A. When the bolt is out, I take it, I clean it, inspect it
19 for any cracks, any steps in it, damage, discoloration. The nut,
20 I thread it on, see if it still has its internal fasten -- what is
21 the word I'm looking for? Make sure it doesn't thread all the way
22 down. If it does, I condemn those and get new bolts or nuts out,
23 but all that was serviceable on it. Everything passed an
24 inspection.

25 Q. Okay. And so each of those, do you recall how far the

1 nut went down?

2 A. No. Since then, I've done a couple of servo changes,
3 so --

4 Q. Okay. When you're determining that, do you look at -- I
5 think we can all agree if it goes all the way down, that's not
6 serviceable.

7 A. Yes.

8 Q. But is there a question if it goes midway down the
9 threads or if it goes partially? Do you have a way to gauge that?

10 A. There's inspection criteria in the maintenance manuals.
11 I personally, if it goes past where I can see any of the shank,
12 any of the thread of the bolt, I toss the nut and get a new one.

13 Q. Okay.

14 A. So -- but it's all in the maintenance manual.

15 Q. Okay. And you talked a little bit about safetying each
16 of the bolts.

17 A. Uh-huh.

18 Q. And that's done through pins as you had mentioned, I
19 think, in our first interview. And how do you determine which pin
20 to use for both that upper and lower and the input rod?

21 A. Well, the book calls out for a certain part number but
22 we don't necessarily carry that all the time, but we do have a
23 chart that converts it from the Eurocopter part number to the
24 general stock that we use.

25 Q. Uh-huh.

1 A. So that's -- we use the paperwork on that to convert it
2 over and to see which ones can be used.

3 Q. Okay. And do you recall which pin it called for in this
4 case?

5 A. It's the general stock. It's used a lot on all the
6 pins. We call them the 151 cotter keys.

7 Q. Uh-huh. Okay. And actually I brought some here. I
8 don't know if you can remember the size, but do you recall if you
9 went over and actually got the pins out of that general area, that
10 general stock area or if you had them in your toolbox or --

11 A. I believe I went over and grabbed some out of the box.

12 Q. Okay.

13 A. Sometimes I grab a little extra and put them in a
14 designated bag --

15 Q. Uh-huh.

16 A. -- but I believe that day I went straight to the --

17 Q. Okay.

18 A. -- bin and got them.

19 Q. Okay. Over to the area there, kind of on the other side
20 of the hangar?

21 A. Yes.

22 Q. Okay. And let me get these out. So we were looking at
23 all the different pins that you have over here, and I know you
24 have more than this, but do you remember which size you would have
25 used?

1 A. This one is the 151 size that's most commonly used.

2 Q. Okay.

3 A. We can use these, but we'd have to trim them down. This
4 one is less trimming --

5 Q. Okay.

6 A. -- less hard to get on the aircraft.

7 Q. So then you can just fold it over and you don't have to
8 worry about it.

9 A. Yes.

10 Q. Okay. Great. On the servo, there's an ice shield,
11 that plastic shield.

12 A. Yeah.

13 Q. You know what I'm talking about?

14 A. Yeah.

15 Q. Okay. Do you remove that?

16 A. To take the old servo off, I didn't.

17 Q. Okay.

18 A. To put the new servo on, I normally -- I take them off
19 so that way I have easier access to make sure the bolt goes in
20 simple and easy.

21 Q. Okay. Did you remove it in this case?

22 A. I can't recall.

23 Q. Okay. Have you ever reinstalled a servo with the ice
24 cover on?

25 A. I have done it.

1 Q. Okay. And are there any differences?

2 A. The only difference is that it's just a little bit
3 trickier to get the cotter pin in because you have to hold it with
4 pliers and come down with it, but it's the same either way.

5 Q. Okay. Would you say it's standard that you'd leave it
6 on when you reinstall or not, or do you usually take it off or --

7 A. I -- when I reinstall it, it normally comes off. So
8 that way I can just -- it's easy to see the bolt coming in and
9 out.

10 Q. Okay.

11 A. But I can -- it's been done both ways.

12 Q. Okay. And again in the case of this 100-hour
13 inspection, you don't recall --

14 A. No.

15 Q. -- whether or not you did or not? Okay.

16 And you talked a little bit about replacing that upper
17 rod end. Is that something that you would safety when it's off
18 the helicopter or --

19 A. I normally safety the rod ends back down on the
20 helicopter --

21 Q. Okay.

22 A. -- because it's being held there a little bit more
23 secure than when it's on the bench and I can get a tighter safety
24 on it.

25 Q. Okay. And would you -- I guess at what stage would you

1 do that? Would it be after -- would you do it when you're putting
2 the pins and everything else, or is it --

3 A. I do the safeties before I secure the bolts all the way
4 back down and cotter key them because we -- on the top broad ends,
5 we put Pro-Seal on them just as a way to verify that they were
6 inspected and they haven't moved. So I normally safety them, get
7 them inspected, and then I Pro-Seal that top rod end and then I
8 put it back again and then I safety it or torque it and key it
9 down.

10 Q. Okay. All right. Before you talked about that you had
11 done this procedure six times in the past, about six times. That
12 was an estimate, I think. How often would you say you replace the
13 hardware or replace a portion of the hardware?

14 A. A lot of times it's serviceable, but nuts, they wear
15 out.

16 Q. Uh-huh.

17 A. So they get replaced most often.

18 Q. Okay.

19 A. And then just if there's any damage found on the
20 hardware, it gets replaced.

21 Q. And what kind of damage are you looking for?

22 A. Any deep scratches in it, any steps in the bolt, any
23 real discoloration saying it's been rubbing, and it's all the
24 criteria for a capacitor and the inspection criteria is in the
25 maintenance manual.

1 Q. Okay. The -- so after your work was performed, Gaylan
2 took a look at it.

3 A. Uh-huh.

4 Q. That's the inspector. And were you there when he
5 inspected it or --

6 A. I was in the general area, not -- I don't believe I was
7 on the helicopter with him since there was one ladder right there.

8 Q. Okay.

9 A. But I was on the ground waiting for him to say it was
10 cool.

11 Q. Okay. And do you know just based on working with him, I
12 know you guys work on a team quite a bit, how he inspects?

13 A. I don't really pay attention to how he inspects. He
14 looks at it and makes sure it's safetied, they're in the right
15 direction, make sure everything's cotter keyed.

16 Q. Uh-huh.

17 A. To me it's all standard because he does it all the time.

18 Q. Sure.

19 A. But I don't know his actual process.

20 Q. Sure. I guess kind of the more obvious things that you
21 might notice like does he touch stuff as he's inspecting or --

22 A. Yes.

23 Q. -- is he looking or -- you know, because there are
24 different ways to inspect things. So does he actually touch the
25 component when he's looking at it or --

1 A. I can't really say. I want to say he does --

2 Q. Uh-huh.

3 A. -- but I don't pay that close attention to him when
4 he --

5 Q. Okay. And do you recall whether or not he used a paint
6 pen?

7 A. Oh, yes, he always uses a paint pen when he marks the
8 safeties.

9 Q. Okay. And do you know what color he uses?

10 A. I believe at that time he was using white.

11 Q. Okay.

12 A. His color has been changed since that.

13 Q. Okay. What color is it now?

14 A. Yellow. I believe it's yellow.

15 Q. Okay. We can ask him.

16 A. Okay.

17 Q. It's probably a better question for him, right?

18 A. Yeah.

19 Q. All right. So after he completed his inspection, you
20 had mentioned before, he didn't find anything wrong or --

21 A. No.

22 Q. Everything was good?

23 A. Everything was good on the servo.

24 Q. And did you notice whether or not the components that
25 you safetied and torqued were striped?

1 A. After he goes up, I make sure he didn't miss anything,
2 and everything gets looked at again.

3 Q. Okay. And so did you actually see markings on the
4 components?

5 A. Yeah.

6 Q. Okay. And we talked a little bit about this before,
7 but you all had moved down to this new hangar, I think about 60
8 days or something like that, and -- is that about right?

9 A. I really don't --

10 Q. A few months anyway.

11 A. Yeah, a month -- two or three.

12 Q. So you had worked a few months up here and then a few
13 months down there?

14 A. Yeah.

15 Q. And can you talk about were there any -- it sounds like
16 there's been a lot of good since you've moved down there. Are
17 there any drawbacks to working down there that you found?

18 A. No, not really.

19 Q. Okay.

20 A. It's pretty nice down there.

21 Q. Okay. And how about your procedures with the parts
22 department and requesting parts? Has that changed at all or --

23 A. Everything works pretty much the same.

24 Q. Okay. All right. We noticed in looking at another
25 helicopter that occasionally those diaper pins are used to secure

1 things that would require a safety. Do you know when you would
2 use that and when you would use a pin?

3 A. There is information about it in the books but a lot of
4 the -- like all of the servos and everything, they don't use the
5 diaper pins so I don't --

6 Q. It's not allowed? It's actually called out to use the
7 pin --

8 A. I'd have to --

9 Q. -- is that correct? I'm verifying what you're saying.

10 A. I don't know off the top of my head. I'd have to go
11 look it up.

12 Q. Okay.

13 A. Normally what comes out goes back in.

14 Q. Okay.

15 A. And a new one goes back in of the same, but --

16 Q. And I guess do you ever see a diaper pin on a servo?

17 A. Not since I've been here.

18 Q. Okay. Going back a little bit to the ice cover. So in
19 the case when you remove that cover to reinstall, what additional
20 steps are required?

21 A. Well, when it's off the aircraft, you break the safeties
22 and undo the Allen key screws and place the cover up on the deck
23 where you know it's going to be, and then once you've got the
24 input rod in and safetied them, put the cover back on, tighten it
25 down and re-safety it so they don't turn themselves out.

1 Q. Okay. And are those installed on all the helicopters?

2 A. The ice shields?

3 Q. Um-hum.

4 A. Yes.

5 Q. Okay. So that's a standard item you have on?

6 A. Yeah, they come with the servo --

7 Q. Okay.

8 A. -- already built -- attached to the servo and then we
9 check them out.

10 Q. Okay. One on that's -- okay. Got it.

11 MS. DUNKS: Do you have any questions, Maryam?

12 BY MS. ALLAHYAR:

13 Q. What do you like about the new hangar? I know you said
14 there were no downfalls. What do you like extra?

15 A. It's a lot quieter. You don't get all the noise when
16 all the helicopters leave at the same time or come in at the same
17 time. It's just really like quiet and you don't have to deal with
18 all the pilots walking through --

19 Q. Okay.

20 A. -- every time they're coming in and out and all the
21 other maintenance or personnel here walking in and out of your
22 area.

23 Q. There's less distractions?

24 A. Yeah, less distractions.

25 Q. That's good.

1 MS. ALLAHYAR: Okay.

2 MS. DUNKS: Okay. Gary, did you have any questions?

3 MR. G. CAMPBELL: No.

4 MS. DUNKS: Okay.

5 BY MS. DUNKS:

6 Q. And Kyle and Jack talked to me a little bit about some
7 new procedures you all have here. Can you talk a little bit about
8 that?

9 A. There is a few more QANs that we're going through
10 processes on, having to do with -- one of the new ones is having
11 to do with the bolt that goes from the input rod into the servo.
12 We have a different -- we have a more -- a new procedure on it, an
13 actual typed one from the company. All this can be found in our
14 QAN handbook.

15 Q. Okay.

16 A. But -- yeah. I was trying to remember.

17 Q. Sure. How do you know as a mechanic, because it sounds
18 like the QAN, this one anyway, is in addition to the maintenance
19 manual, right?

20 A. Yeah.

21 Q. So how do you know as a mechanic when those apply?

22 A. They're printed in the QAN and if we have any questions,
23 we go see Jack about it and he'll go into more detail about it and
24 show you where and why.

25 Q. Okay. And how are -- so, how are you told about this

1 initially I guess? Is there training provided or --

2 A. A QAN is sent out and it's got text and pictures on it
3 showing you what's wrong, what we're -- why we're replacing it or
4 why we're doing something to it. It's printed in the QANs and as
5 a shift, when the new one comes out, we read through it and
6 through it and then we sign off that we read it and will be
7 complying with it.

8 Q. Okay. And then it's up to you to remember when you're
9 doing this particular procedure that there is a QAN on it?

10 A. Yeah.

11 Q. Because when you go to a maintenance manual, that's not
12 going to be --

13 A. It's just -- the QANs are the company's step above what
14 the maintenance manual calls out for.

15 Q. Okay. And when you came in as a new employee in June,
16 were you briefed on all the previous QANs or --

17 A. Yes.

18 Q. Okay. Just going back to kind of the safety, the
19 safetying and stuff like that, so on this particular procedure,
20 the reinstallation of the servo, what would have been required to
21 be safetied?

22 A. Well, we have the two hydraulic bolts that go through
23 the accumulator into the servo to mount the accumulator on. Those
24 two nuts get safetied together to make sure they don't spin out
25 and cause any leaks or any loss of pressure. The two rod ends

1 also get safetied to make sure they don't loosen and turn out.
2 The "I" cover would get safetied if it got taken off. All three
3 bolts get torqued and safetied as well. And the magnet, that we
4 put back on the servo, gets safetied to keep the nut down.

5 Q. Okay.

6 MS. DUNKS: Maryam, do you have the paperwork for the
7 pin stuff?

8 BY MS. DUNKS:

9 Q. So we were having them walk us through kind of what's
10 involved in finding which pin needs to be used. Is this the
11 information you were talking about?

12 A. Yes.

13 Q. Okay. And so can you tell me how you would do that?

14 A. These are the Eurocopter part numbers for the cotter
15 pin.

16 Q. Okay. Uh-huh.

17 A. The general one is the 1/16 inch, the 1.5 millimeter.

18 Q. Okay.

19 A. So you take that information over to our chart, the
20 general cotter keys and everything we have, and we have a 1/16
21 inch up here, and the part number, the information
22 (indiscernible). We've got the -- all the information's up here
23 about the length, the thickness, the -- and everything, and then
24 we just come over here and we've got our 1/16 length and then
25 we've got our -- then we have 1.5 millimeter, which adds up to

1 1/2 inch.

2 Q. Uh-huh.

3 A. And then we've got the 151's here, and just going down
4 here, the different lengths, if it needs to be longer or shorter.

5 Q. Okay.

6 A. But the map translates to here.

7 Q. Okay. And where do you find this stuff, these charts?

8 A. In the reference manuals and maintenance manuals --

9 Q. Okay.

10 A. -- on the shop floor.

11 Q. All right. And the same with this chart, or --

12 A. Yes.

13 Q. Okay.

14 A. It's all available to us, either through the shop floor
15 or through parts or quality.

16 Q. Okay. All right. Thank you. Let me just look here and
17 see if there's anything else, any other questions I had.

18 I did have a question on -- so when you leave the shield
19 on, the ice shield on, what kind of tools do you need to use to
20 get the pin in?

21 A. It's just the same set of pliers you twist, you bend it
22 with.

23 Q. Uh-huh.

24 A. You just use those to feed it through the hole. No
25 extra tool is needed.

1 Q. Okay. And those fit in there okay?

2 A. Yeah.

3 Q. Okay. And do you have your own torque wrench or do you
4 use the company torque wrench or --

5 A. I have a personal one that's been calibrated through the
6 company.

7 Q. Okay. And is it an electronic one or --

8 A. It's a click -- analog type.

9 Q. Okay.

10 MS. DUNKS: Does anybody else have any other questions
11 or --

12 MS. ALLAHYAR: No.

13 MS. DUNKS: Okay. All right. Well, thank you for
14 coming back and clarifying some of this information. You know, we
15 learned a lot since we spoke with you and just had a few questions
16 of our own that we wanted to follow up on. So did you have any
17 additional questions for us right now or --

18 MR. CAMPBELL: No.

19 MS. DUNKS: Okay. All right. Well, again, thank you
20 very much, and if anything does come up again, you know, feel free
21 to contact us at any time, all right.

22 MR. CAMPBELL: Yeah.

23 MS. DUNKS: All right. Thank you. Take care.

24 (Whereupon, the interview was concluded.)

25

CERTIFICATE

This is to certify that the attached proceeding before the

NATIONAL TRANSPORTATION SAFETY BOARD

IN THE MATTER OF: SUNDANCE HELICOPTER ACCIDENT
 NEAR LAS VEGAS, NEVADA
 Interview of Clinton Campbell

DOCKET NUMBER: DCA-12-MA-020

PLACE: Las Vegas, Nevada

DATE: January 11, 2012

was held according to the record, and that this is the original,
complete, true and accurate transcript which has been compared to
the recording.

Kathryn A. Mirfin
Transcriber