RECORD OF CONVERSATION

Zoë Keliher – NTSB, Air Safety Investigator
John Clark – NTSB, Chief Scientist

Person Contacted: Levi Phillips
Date: June 10, 2009 (Ogden, UT)
Subject:LAX08GA259 ; Sikorsky S61N, N612AZ, Weaverville, CA

The following are transcript excerpts of Mr. Phillips:

ZOE: Now as far as looking over all the Chart C's that I've seen for the accident helicopter and then seeing all the things that were in fact removed and installed [PH], the Chart C has never adequately reflected what was being done with the helicopter. Do you know why that is?

LEVI: I don't understand what you mean.

ZOE: Well, for example hoists were taken on and off and there was never a Chart C reflecting that a hoist was taken on and off. The Chart C's weren't kept up to par.

LEVI: And that's an error in our system.

ZOE: During that meeting you told me that the scales were weighed with the roll on scales and that's why we weren't using that weight because we found out that the roll out scales were in accurate.

LEVI: That was what we were led to believe at the time. At this point of day I don't think they were [unintelligible] but I don't --

ZOE: Okay because you were really confident when you told me that last time that the scales were weighed on roll on scales.

LEVI: And that's probably because I was told that by Rod who told me that it was on the roll on scale. I mean that's all I have to go on is somebody telling me that. When we put this aircraft on certificate, we basically looked at it as does it have a current weight and balance on it. And yes, it does. Did we go look at the Chart A? We [unintelligible] the Chart A, we just verify that it

has a current weight and balance on it. Um, that's changing as well; I mean that's something that uh --

ZOE: So when you wrote down your numbers on the January 4th weigh in and you put 12,408 as the weight, well it might have been lighter than that because the Chart C amended [PH] with the seats. But when you wrote down the January 4th weigh in and it says prepared by Levi Phillips, where did you get those numbers from?

LEVI: The one that I made for 612AZ came from Rod Manouge.

ZOE: And how did he send that to you?

LEVI: I believe it was through a email from -- it wasn't sent to me. It was sent to uh, Ginger Lee [PH] [unintelligible] because my email was not working for some reason so she sent it to him.

ZOE: So when I'm looking at the emails that I see that he sent to her, they have different numbers than that. So I'm wondering where you got your numbers from.

LEVI: Well, the numbers that I should of written down were the ones that came off of the Chart B that Rob [PH] sent Ginger Lee and I believe it was 12-3-28.

ZOE: So the numbers that you wrote down were different -- do you know where --

LEVI: The numbers that I wrote down, I don't know, that's not -- I wrote them down. They shouldn't match HRB [PH] somewhere.

ZOE: Because nothing I'm finding is matching.

LEVI: Not with that 3-28 it's not. Sorry.

ZOE: Um, so do you have any idea what could of happened?

LEVI: Be it in the uh -- no, I mean, how those numbers were -- came about, I mean if it were something that Steve did during his contracting, uh, computations or -- where they would come from. Because if I -- first of all we fly in these helicopters, I fly in these helicopters. I want the weight and balance correct. I have friends who fly in these helicopters. Um, I am an A&P mechanic, that's one of the things that we do, we're supposed to do correctly is weight and balance. So [unintelligible] that your weight and balance is correct. So it's somewhat disheartening when your weight and balance is not correct. Um, it was very disheartening when all the weights and balances that we had for the forestry services weigh-ins were off because of a roll on scale. Um, that's just something that you don't -- weight and balance is a pretty serious deal.

LEVI: Well, I for one, didn't prepare a document with different weights -- I -- because I believe the weight on the document was 12, 013.

ZOE: Uh-mm --

LEVI: Was the one that was uh --

ZOE: That's the one that you prepared, that your name is on?

LEVI: My name is on. That -- that's a document that's on our server that I can print one out with your name on it. Um, it's not a document that you would save because it's in a -- the file that it's in is one that you would uh; you have to change things in the file to save it. So it's not one that you're going to save somewhere as to when you're going to be able to print.

ZOE: So are you saying that you did not prepare these documents?

LEVI: I'm saying that some of those documents I did not prepare.

ZOE: Do you know who did?

LEVI: I don't know [unintelligible].

ZOE: Well that's a pretty serious allegation. That somebody is using your name.

LEVI: Yeah, it bothers me too.

ZOE: And you don't know who that was and they've never talked to you about it?

LEVI: No. [Unintelligible] talk to me about it.

ZOE: But do you know who it is?

LEVI: Um, I don't know who it is, I have suspicions.

ZOE: So you don't keep control of the documents?

LEVI: For the bidding?

ZOE: Well they're -- they're not just prepared for the bidding, they're also prepared for the current weight and balance as you told me before.

LEVI: Not those. Current weight and balance is in the aircraft flight manual.

ZOE: So are they different weight and balances that you do for contracts?

LEVI: That I do for contracts? No. I mean we will take the current weight and balance of the aircraft and give it to Steve and here's what it weighs, go from there. Now there's things that I'm sure he -- know that he does where he'll look at 'em and say, well, you know, this aircraft here might be too much, too light, too heavy. So, um, and he can compute from there, well we might have to remove some stuff. We might have to -- you know the non essential stuff that doesn't have to be on there by TC [PH] can be taken off there to make the aircraft lighter. And

that's where you would be able to reduce the weight of the aircraft. But that's not the one that's in the flight manual.

ZOE: Well in this case it was the one that was in the flight manual. Which we know because we see what they're using for their load calculations. So it's also addressed in my report that you've signed off on nine different weight and balances that the right and left main landing gear were all 80 pounds apart.

LEVI: I didn't sign anything.

ZOE: Your names on it and emails --

LEVI: That doesn't mean anything --

ZOE: Were sent from your email box.

LEVI: Zoe, you're an A&P mechanic, if somebody does something, they sign it, put their A&P number [PH] that's how a weight and balance is done.

ZOE: So I wanna make sure that you're really clear that you did not do those.

LEVI: Yeah, I did not do those.

ZOE: And you think that somebody has been using your name?

LEVI: I believe that my name was used on some of those, yeah. 'cause I can go through and say well, you know, this one -- this ones right.

ZOE: I've seen emails passed around about it's weight. And now in light of seeing that all the weights are 80 pounds apart, it's --

LEVI: No, I mean that's a computation, somebody did some math.

ZOE: So in response to -- in my report I'll say, an NTSB investigator asked the person who the forms indicated that it was prepared by and he responded that he didn't prepare that documentation?

LEVI: Um, I mean you cannot -- you can't say that because of the fact that some of those I did prepare.

ZOE: So why was it exactly 80 pounds apart?

LEVI: I don't -- all of them? Then I didn't prepare 'em. What I'm trying to say is there are some of those documents that when this was going through, that I did 'em on that form and put my [unintelligible] down. But they were transferred directly from the aircraft weight and balance. So after that they were modified so that they were computed to, well I want it to weigh this much.

ZOE: Hmm, I'm sorry; I don't understand what you're saying.

LEVI: I'm saying that I took the aircraft physical weight and balance, someone either sent me or uh, or predominantly sent me and I transferred that to our weight and balance form and gave that to Steve for contract. So I know I did fill some of those out. Put my name at the top but I did not sign it because I wasn't doing the weight and balance. If they were altered afterwards, I have no control over that. But it's also not something that I'm not looking at for oversight because in most cases they don't go in the aircraft, they shouldn't be in the aircraft.

LEVI: She said that on all of these there appears to be that they're all exactly this far apart.

JOHN: Yeah.

LEVI: Which is uh, somebody established the weight that they wanted and put those numbers on it.

JOHN: Cheated?

LEVI: What's that?

JOHN: Cheater?

LEVI: Oh, yeah.

RECORD OF CONVERSATION

Zoë Keliher – NTSB, Air Safety Investigator
John Clark – NTSB, Chief Scientist
Jim Struhsaker – NTSB, Senior Air Safety Investigator

Person Contacted: Robert (Bob) Boyd
Date: September 03, 2009
Subject:LAX08GA259 ; Sikorsky S61N, N612AZ, Weaverville, CA

The following are transcript excerpts of Mr. Boyd:

BOB: Then that's right, that means any time we have a uh, an overhauled uh, rebuilt transmission, we put it on the aircraft. We have to run it on the ground for 15 minutes and then we run it at higher torque for 15 minutes and then the last thing we do is we go out and we hook onto the weight and we pull about 80% torque for half an hour. Um, usually we hook onto our weight of the cargo hook of the helicopter. And that meets the maintenance requirements for the run in on the transmission. So you know we put a transmission on the aircraft and we ran that transmission in and I signed off uh, a maintenance flight, you know, test flight that the aircraft was basically I'm saying that the aircrafts air worthy. Um, again, uh, now why did we pull the other transmission off? Obviously there was -- either it was high time or there was a problem with it, maybe [unintelligible] metal or something. I don't remember that. You know, Rod Manoque [PH] he probably would -- he probably would remember something specific. But it uh, that's not a big deal in my world. It happens from time to time, you know they would do a transmission run in and it has nothing to do with the hoisting what-so-ever.

ZOE: Does that mean that the cargo hook has to be installed during the transmission run?

BOB: Well um, it -- you know, it normally is, that's how we do it, okay. That's the only remembrance ever that I remember uh, we don't do it any other way. Let's put it this way, I've never to my knowledge done it any other [clearing throat], any other way. So to answer your question, yes, the way at Carson's the way we do our transmission run in [clearing throat], the cargo hook has to be installed because that last 30 minutes we're sitting there with a 100 foot cable underneath the helicopter hooked onto that 7,000 pound weight pulling, you know I forget the exact number but it's uh, you know I think it's in the 80 area there. I think you can go from like 75 to 82% [clearing throat], torque. And uh, you know so it's in that ball park. And you hold that power for 30 minutes. That's the last thing -- that's the last step that you do in the maintenance manual you know it gives you the specific procedure for running the transmission and that's -- so yes

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ZOE: Alright, and I know I've asked you this before but to your best of your recollection can you remember how many seats were installed at the hoist testing?

BOB: Uh, you know I wouldn't -- when we did the acceptance flight and I always go to the acceptance flight 'cause that's the very last flight we did. The very last flight we did and so -- so the reason -- the reason -- my belief is, is that we had as few seats as possibly could is because one of the requirements on the acceptance flight that we -- that was chosen to do, was to do with 300 -- or lets say -- almost 300 feet of cable out -- we had a hover -- one of the -- I believe one of the items was to do a engine cut uh, bring of the engines back to idle, uh, hover on the remaining engine and show that you could maintain a hover at that particular weight, okay. So obviously we wanted the aircraft as light as we could get it.

ZOE: Okay, on your Excel spreadsheet that you did to do all the weights it says C6 and C7 which I'm looking at to be probably a bench and a single. Do you think that it would just -- just listed those stations. Do you think that it would just be those two areas of seats or if there were more seats would you have listed it in that Excel.

BOB: If there was more I would of listed it. Yeah, C6 I believe is a single seat, C7 I think could be a um, could be three in a row. When I put C6 and C7 on there did I make any mention uh, as to um, the weights or anything?

ZOE: Yeah, some of you put zero and some of them you put 250. Which looked like maybe there's an operator or station person there?

BOB: Yeah, yeah, exactly, that um, that one person that was uh, operating the hoist and the basket or whatever um, and there was only one with 250 in it, right?

ZOE: Yeah.

BOB: Yeah, and that was the operator for that particular flight because even on the acceptance flight obviously we needed somebody back there to supervise the hoist.

JOHN: I've gotten um, when you start a flight test like that, do you do a -- how many times do you do a weight and balance? Like when you start, when you finish? Uh, or do you do it all by paperwork?

BOB: No, no, um, well, I think the hoist testing was a little bit different um, what I'm trying to tell you is -- is when you actually start the hoist testing that the weight of the aircraft maybe isn't important for a portion of it because the very first portion of the hoist testing you're primarily just uh, you know you let the hoist -- you check the operation of the hoist at a hover and make sure it goes up and down the number of cycles that it's supposed to and the weight of the aircraft is not an issue and then you -- and then you um, put the basket on or um, well the first thing we did is we put weight in the basket and we're flying the basket around. Uh, with the cable let out, uh, making turns and maneuvering and uh, so you see there how much the helicopter weighs at that particular point is not a consideration okay. The only time the weight of the helicopter in hoist testing becomes a consideration uh, is when you would do an engine cut. Okay you do an engine -- because uh, you know you're -- the hoist -- if you pick someone up with the hoist well then of course you're supposed to be a uh, a Class B load and you're supposed to have single

engine capability and the helicopter is supposed to be able to hover on one engine okay. Until you're involving your testing to that particular item, the weight of the helicopter isn't an issue like it is when were blade testing and we were loading the helicopter. We wanted to know exactly what the helicopter weighed on each flight and we wanted to know exactly what the CG was. Was it neutral CG, was it for forward CG, was it aft CG because different maneuvers that you do require that you have a different CG uh, location. And so you can see that with our blade testing yes, the first thing you would do is you would configure the aircraft and you would weigh it and that would be a very um, a very strict item. But the hoist testing it really wasn't something that you needed -- the weight of the aircraft wasn't something that you needed. You need the uh, exact weight of the aircraft uh, until you got ready to maybe do the engine cut and then you want to know exactly what the aircraft weighs, you want to know exactly what each crew member weighs, you want to know exactly how much fuel you've got on board. Because you have to load the aircraft so that whenever you do an engine cut, whatever weight you've got in the basket and what you've got on board, the aircraft has to be able to hover on one engine. If that kind of answers your question.

ZOE: [Unintelligible] test -- got it. So even without an STC would they be flying around the helicopter with a hoist on?

BOB: Well um, I don't think you -- I don't think -- well okay if you're -- if you're in the process of testing the aircraft I think has to be put in an experimental category okay. Before you get the STC. But I guess the question is can you put it on any helicopter and no, no, you would put it on -- you would only put it on an aircraft that either has the STC or the aircraft is experimental, in experimental category for the purposes of doing the hoist testing.

ZOE: I guess my question is, after you are done with the hoist testing and it's not experimental anymore then would they take it off and later on put it on with a STC?

BOB: Yeah, that's the only way -- you would have to wait -- you would have to wait until the STC got approved and then -- you'd have to take the hoist off and then -- and then when the STC got approved you could put the hoist back on whenever you needed it.

ZOE: So then they probably couldn't have left it on because it wouldn't be able to fly.

BOB: Well that's right, that's right. They wouldn't be flying the aircraft with the hoist installed until such time as they got the STC.

ZOE: We were listening to the cockpit voice recorder and we found out that it's pretty likely that the pilots both went to topping twice before from the same departure pad.

BOB: Right.

ZOE: Would they know that?

BOB: Oh, yeah, oh, yeah, absolutely, absolutely.

ZOE: Would they talk about it?

BOB: What's that?

ZOE: Would they talk about it?

BOB: Uh, well, um, I -- you know I guess the -- I guess they -- well you know it depends on what kind of technique maybe they was using in departing, you know sometimes um, maybe they felt that when you -- when you lift up and you takes off you just go to full power right away, okay, you don't even -- you don't even hesitate regardless of the load, you just pull full power and get it going. Don't you know wait until it starts to struggle and then go to full power.

ZOE: Yeah --

BOB: The only -- the only problem with that -- and okay, that's kind of the technique that I would use with a load of water. Okay, I pick up a load of water and I just go to full power right away and if it starts to slow down and stop climbing then I'll just start bumping off -- with the electrical switch I'll just start bumping off a little bit of water until I get an acceptable rate of climb going again. And then of course you know if uh -- if um, the situation turns ugly well then I'll dump the whole damn thing you know. But that normally don't happen um, but if you do that loaded internally and it stops climbing on you well then you're -- you're in a very bad situation. You know, you're not going to never make it to 65. You know, you're gonna terminate a hell of a lot earlier in life. [Clearing throat], if you're smart you guys ever fly helicopters and you're smart, what you do with that 61 is you pick it vertical off the ground and pick it up to at least a 50 foot hover. And 50 feet is not real high but you're starting to loose your ground affect, okay. Just pick it up to a 50 foot hover, check your power and if you've got power remaining, say 10% remaining at a 50 foot hover, then you can -- you know you're supposed to be loaded to where you can hover out of ground affect then just continue -- just continue forward and up from a 50 foot hover and you'll fly away. But if you leave the ground at three feet and you go to full power and you didn't have the power to get to 50 feet in the first place with 10% remaining um, then you don't know what the hells gonna happen to you. You know you don't know whether you're gonna make it over the trees or not. So uh, I guess that's about all I can say about that subject. So they, you know they go to topping on the first two you say --

ZOE: They didn't talk about it.

BOB: Yeah, maybe -- they did talk about it?

ZOE: They didn't.

BOB: They didn't? Okay, yeah, because they probably -- the reason they probably didn't talk about it is um, is uh, that uh, that was just their technique, pull everything, you know -- give it everything you've got when you leave the ground and uh, keep that rate of climb going you know.

BOB: Well, again, okay again, it's um, it's -- you know it's -- you might equate it to when you're a young person and your -- you know the way you -- some young fella's drive [laughter], when they take off, they give it everything it's got okay, whether they need it or not they go full power you know. And um, so it's -- you -- with a load of water you do that. I mean you don't necessarily pull it to 101 but you might pull it down to [clearing throat], 102 on every takeoff with a load of water. You just -- you just pull it till you get 102 droop, it comes down to 102, you know you've got both engines topped and you know you don't have any more and you let it go with that. [Clearing throat], and like I say, if it climbs out um, and everything -- climb

continues, you just keep on letting it go, you clear your trees, you accelerate and off you go. Uh, so I wouldn't find that to be um, something that you could point any specifics at. You know what I'm trying to say.

JOHN: Perhaps they wouldn't talk about it but would you go back and do it a second time?

BOB: Uh, with a load of water yes.

JOHN: Yeah, we're talkin' passengers though.

BOB: No, no, with passengers what I would do is I would pick that sucker slowly up to about 50 foot hover, I'm starting to loose a lot of my ground affect. I would check my power and if 50 feet if the rudders down at102 um, I would -- I would land back on the ground and go look for a new occupation.

BOB: Well you know, if you pushed the speed selectors all the way forward. Um, say you know you're not -- your down on torque and not all the way up on torque you know the rotor would be up around five. So if you droop it to 102 or 101 you know you've got the engines fully topped you know.

JOHN: Go ahead.

BOB: And there's -- and there's nothing wrong with drooping it to 102 or 101. Um, you know because for many, many, many years uh, you kind of like set the rotor to 103 with the metal blades and drooped it to 100 on takeoff you know. So drooping it down to 101 or 102 uh, is -- you know is not an abnormal thing.

JOHN: Okay, what uh -- if you set up the helicopter and you load it up and you know the temperatures and your takeoff performance charts, you take off and you have a certain -- you have a performance margin and I know you look for perhaps at least 10% or something like that. What -- if set up that helicopter per the numbers and everything, how much more weight can I add and still get it off the ground?

BOB: Well if -- if you load it -- if you load it to the hover out of ground affect chart okay --

JOHN: Yeah, right --

BOB: Okay, for the altitude and the temperature and [clearing throat], you say, okay I'm gonna -- it says for this temperature and this altitude I can hover at 17,000 pounds weight, okay. Well what you will do is you pick the helicopter up and you will hover up to 100 feet and at that power -- at that power the helicopter will stop okay. It won't climb any more. It will stop. I mean that's -- when it says you can hover out of ground affect at that weight uh, you know you're not gonna have a 200 foot per minute rate of climb if you understand what I'm saying, you know.

ZOE: Yep.

JOHN: Yeah, you have to start flying?

BOB: Yeah, I mean but it will -- it'll you know if you -- if you load it per the hover out of ground affect chart it will hover up to out of ground affect and then it will stop climbing because you are out of ground affect and it won't do any more. If you were 500 pounds lighter than out of ground affect then it would continue to climb slowly straight up.
JOHN: How much more can you put in for the HOGE, how much more weight can you put on that helicopter and get away? We've heard people say that you could load it uh, 1500 pounds over the HOGE weight and it'll fly.

BOB: Well, it -- will it -- now what they're saying is it'll fly uh, lets see if I can -- let me put this into correct thought. Okay lets say you load it 1,500 pounds above your hover out of ground affect weight and you pick it up to a 10 foot hover okay and you've got a 5,000 foot runway in front of you or -- no, lets say you've got a 200 foot runway in front of you. Okay lets say you've got a 200 foot clear area in front of you, a nice level field. You pick it up to a 10 foot hover and in that 200 feet you translate into transitional lift, okay. Now you're above transitional lift. [Clearing throat], you continue accelerating up to 67 or a little less at altitude and sure, sure, it'll fly like no problem at all because the rotor is extremely efficient at 67 knots [cough], you could put a huge amount of weight on and it will fly. Okay but if they're saying that you can take off out of ground affect that's not true. But it will fly above that hover out of ground affect weight by 1,500 pounds. [Cough], it's being able to get it into forward flight um, in order to do that fly, is that uh --

JOHN: Well yeah, what you were saying is if I take off -- lets use your 17,000 pounds.

BOB: Right.

JOHN: And I can climb up to 100 feet and this helicopter just isn't going to go anymore --

BOB: Right.

JOHN: And if you did that you would say, I've got a helicopter performing to the numbers?

BOB: Exactly.

JOHN: What's -- what's the chance of somebody doing a weight and balance and missing the fact that seats were in the helicopter or not?

BOB: Uh, no, I don't -- I don't think so. No, no, no. The -- the seats, no, if um, if -- you know you'd have to be blind to uh -- [clearing throat] --

ZOE: What about a cargo hook or a hoist?

BOB: U, mm, well those are -- those are fairly small items. Uh, you know that I -- I really don't think so. Uh, you know the -- the boys here at Perkasie are -- they're pretty you know they're pretty savvy and they -- they just don't miss too many things like that --

JOHN: Is there any chance that somebody could of weighed a helicopter and the guy that signs off all those little check marks and zeros and stuff, really didn't stick his nose in the helicopter and look?

BOB: No, no, um, it -- and you know um, something I would mention -- I would say is one thing -- when a helicopter is weighed uh, well here in Perkasie we don't -- normally use the roll on scales, we use the um, we use the sensor scales where it goes under the jack point.

JOHN: What's -- what's the chance of somebody doing a weight and balance and missing the fact that seats were in the helicopter or not?

BOB: Uh, no, I don't -- I don't think so. No, no, no. The -- the seats, no, if um, if -- you know you'd have to be blind to uh -- [clearing throat] --

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ZOE: Meaning would Rod maybe do the weighing and maybe Dave Wolfe do the --

BOB: No, no. If Rod does the weighing, Rod does the whole thing.

ZOE: Um, have you ever seen a helicopter being weighed without it's rotor blades?

BOB: In you it's -- yes, it's very common that the rotor blades not be on the aircraft and you know it -- it um, it may have something to do with getting the proper CG of the aircraft. Um, you guys should know uh -- you guys should know that better than me. Uh, because you know uh, obviously the blades would have to be spaced uh, perfectly apart to get the proper CG right, if you got three blades that are -- the dampers are compressed and three of the blades are you know to the rear of the aircraft well then that's going to affect the CG I think. And uh, and when they weigh the aircraft it normally doesn't have the blades on it.

ZOE: Um, how about uh, would a DAR, do you know if they would sign off on an air worthiness? Without the blades on it?

BOB: You know I -- I kindly don't think they would. I think uh, you know when they -- when they look at the aircraft I would uh -- but again, you know hey [laugh], I'm definitely taking the leap over the fence with this one. [Laughter]

BOB: Uh, yeah, you know we um, we use -- we use a battery in the nose that sits on the bi-frailer [PH], the nose battery. And then we have an aux battery which uh -- which is in the forward part of the avionics compartment. Um, and that's used for starting the aircraft and uh -- mainly it's used for uh, for starting it. It's an 80 pound battery and it's uh, you know it's in the avionics compartment.

ZOE: Would they start it without that?

BOB: Could you start the helicopter without that? Yeah, you can -- you can start it without that. Um, normally it is installed in the aircraft.

ZOE: Is it always installed?

BOB: Well, it --

JOHN: Normal, is it --

BOB: It is very, very, very normal that it be in the aircraft, yes.
