

UNITED STATES PATENT AND TRADEMARK OFFICE

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Deltran USA, LLC,)
)
Petitioner,)
) IPR No.
vs.) 2024-01219
)
The Noco Company,)
)
Patent Owner.)

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Deposition of:
C. ARTHUR MACCARLEY, Ph.D.
Appearing Remotely from
San Luis Obispo County, California

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I N D E X

EXAMINATION OF C. ARTHUR MACCARLEY, Ph.D.

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BY MR. SAUER

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EXHIBITS MARKED

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1 REPORTING REMOTELY FROM LORAIN COUNTY, OHIO

2 Tuesday, May 13, 2025, 12:11 p.m. EST

3 - - - - -

4 C. ARTHUR MACCARLEY, Ph.D., of lawful
5 age, called for examination, being by me first
6 duly sworn, as hereinafter certified, deposed and
7 said as follows:

8 EXAMINATION OF C. ARTHUR MACCARLEY, Ph.D.

9 BY MR. SAUER:

10 Q. Will you please state your name for the
11 record.

12 A. Carl Arthur MacCarley. It's spelled
13 M-A-C-C-A-R-L-E-Y. But I go by Art, A-R-T, my
14 middle name.

15 Q. And you understand that the testimony
16 you're providing today is under oath?

17 A. Yes.

18 Q. And is there anything that will prevent
19 you from giving truthful and accurate testimony,
20 such as any medication you might be taking, or
21 anything else?

22 A. No.

23 Q. So it's important we don't talk over
24 each other so the court reporter can accurately
25 record testimony. So please let me finish any

1 questions before you answer, and I'll try to make
2 sure that I don't interrupt you or speak over
3 you, if that's okay.

4 A. Understood.

5 Q. Today we're discussing the inter partes
6 review proceeding for US Patent No. 11,667,203.

7 Is that your understanding?

8 A. Yes.

9 Q. Is it all right if we refer to that as
10 the '203 patent?

11 A. No problem.

12 Q. What did you do to prepare for your
13 deposition today, Dr. MacCarley?

14 A. I reviewed my declaration in support of
15 this IPR. I spoke a few times with Chetan
16 Chandra and Ryan Miller via Zoom. I researched
17 those areas where I felt I needed to refresh my
18 memory. That's about it.

19 Q. Did you review any documents other than
20 your declaration?

21 A. Yes. I mean, I can't, I can't fully
22 recount every form of information exposure that
23 I've had during that period, but it was almost
24 entire -- my intention was to stay within the
25 materials that you have access to, as I was

1 instructed by Mr. Chandra.

2 Q. Did you speak with anyone in preparation
3 for your deposition that's not a lawyer?

4 A. I may have mentioned that I was having
5 the deposition to my wife, but that would be it.

6 Q. But nothing substantive?

7 A. No.

8 Q. All right. I understand you have copies
9 of -- clean copies of the documents available to
10 you today?

11 A. Yes, sir.

12 Q. Do you have anything else in front of
13 you other than those documents?

14 A. No, no form of information. I am
15 looking at a computer screen. I was instructed
16 quite strenuously by Mr. Chandra to limit what I
17 have to exactly the materials that were shared
18 with you, and I have a -- all of these contained
19 in a single folder that I would open and then
20 select documents out of. They are clean copies.

21 Q. No apps running other than this Zoom
22 and --

23 A. No.

24 Q. Do you have a -- no cell phone in front
25 of you?

1 A. I have a cell phone here, but it is off.

2 Q. Great.

3 Can you then pull up a copy of your
4 declaration, which should be Exhibit 1003.

5 (Deposition Exhibit 1003, Declaration of
6 Dr. C. Arthur MacCarley, was marked for
7 purposes of identification.)

8 A. Okay. It's open.

9 Q. For the record, this is -- we're looking
10 at Deltran Exhibit 1003, which is titled
11 Declaration of C. Arthur MacCarley.

12 Do you recognize this as the declaration
13 you submitted in IPR2024-01219 on the '203
14 patent?

15 A. Yes, sir.

16 Q. And at the bottom of the pages, they're
17 numbered. Just for example, the first page says
18 page 1 of 105.

19 Do you see that?

20 A. Yes.

21 Q. If you flip forward -- let's say flip
22 forward where it says page 5 of 105. At least on
23 my copy, there's an additional number on these
24 pages. There's a numbering inconsistency.

25 Do you see that?

1 A. I see that. Yes.

2 Q. Is it all right today -- let's refer to
3 the bottom number where it says -- so we'll refer
4 to this as page 5 and not page 1.

5 Does that make sense?

6 A. Yes.

7 Q. If I messed that up, because it's
8 confusing, just let me know. Okay?

9 A. No. I suspect that that was auto added
10 when it was entered into evidence.

11 Q. Sure. No problem. I just want to make
12 sure we're on the same page.

13 Can you turn, then, to page 105.

14 A. The last page?

15 Q. Yes, sir.

16 A. Uh-huh.

17 Q. Is that your signature there?

18 A. Yes.

19 Q. Did you write this declaration?

20 A. By -- from my own hand, not entirely.

21 All of the content I take full responsibility
22 for. And the -- any technical elements of it, I
23 can, I can claim sole authorship of.

24 Q. About how much time did you spend
25 preparing this declaration?

1 A. Oh, gosh. It's dated September 24th.
2 So the work was done in early '24, about a year
3 ago. Collectively, 80 hours or so.

4 Q. Any changes you'd like to make?

5 A. Not at this time. Although, I do want
6 to reserve the right to make a change if, in the
7 course of our discussion, I see something that I
8 feel is in need of correction.

9 Q. No mistakes that you're aware of at this
10 time?

11 A. No.

12 Q. Can you then turn to page 45. Let me
13 know when you're there.

14 A. Let's see. Okay. Okay. I'm there now.
15 I apologize. The resolution on my mouse is
16 fairly high, so scrolling takes a long time.

17 Q. That's all right. Just take your time
18 and let me know when you're ready.

19 A. I'm there.

20 Q. So starting on page 45 and then
21 continuing through page 70 -- excuse me -- 74,
22 you address Ground 1 of the petition which
23 alleges that Claims 1, 3 through 5, and 9 are
24 unpatentable under 35 U.S.C. 103 over Richardson
25 in view of Zhao; is that correct?

1 A. I'll confirm. Yes.

2 Q. Will you pull up a copy of Richardson,
3 which is Exhibit 1005, please.

4 (Deposition Exhibit 1005, US Patent
5 Application Number US 2013/0154543, was
6 marked for purposes of identification.)

7 A. Okay. It's open.

8 Q. For the record, this is -- we're looking
9 at Deltran Exhibit 1005, which is US Patent
10 Application Publication Number US 2013/0154543,
11 correct?

12 A. That's the last number mentioned.
13 154543 A1 is what I have.

14 Q. Yes.

15 And do you recognize this as the same
16 Richardson referenced that you addressed in your
17 declaration?

18 A. Yes.

19 Q. Did you review Richardson during the
20 preparation of your declaration?

21 A. Yes.

22 Q. About how much time?

23 A. It's episodically. Mostly as needed. I
24 didn't in a single pass go through the entire
25 document again, which was done over a year ago.

1 Q. Fair enough.

2 But you'd consider yourself familiar
3 with the technology described in Richardson?

4 A. Yes, sir.

5 Q. Let's go back to your declaration, then,
6 on page 72, please. Let me know when you're
7 there.

8 A. I'm there.

9 Q. Starting on page 72 of your declaration,
10 you're addressing Claim 5 of the '203 patent,
11 correct?

12 A. That's correct.

13 Q. And the language of Claim 5 is written
14 at the top of page 72.

15 Do you see that?

16 A. Yes.

17 Q. And it says -- Claim 5 recites: Wherein
18 the controller is configured to automatically
19 cause the vehicle battery isolation sensor to
20 detect presence of the vehicle battery and the
21 reverse polarity sensor to detect polarity of the
22 vehicle battery when the vehicle battery is
23 electrically connected to the jump starter
24 apparatus and the jump starter apparatus becomes
25 operational.

1 Correct?

2 A. Yes.

3 Q. Then you conclude here in paragraph 116
4 that the limitations of Claim 5 are taught by
5 Richardson, correct?

6 A. Yes.

7 Q. All right. Well, let's look back at
8 Richardson, then, please, Exhibit 1005, and
9 particularly page 7, which shows Figure 3.

10 THE REPORTER: I'm sorry?

11 MR. SAUER: Page 7 of Richardson, which
12 shows Figure 3.

13 A. Okay. I'm there.

14 Q. So you see Figure 3 on page 7, correct?

15 A. Yes.

16 Q. And at the top of Figure 3, you see the
17 first step, power on, 200? See that step?

18 A. Yep.

19 Q. So the device in Richardson is powered
20 on at Step 200 in Figure 3, correct?

21 A. Yes.

22 MR. CHANDRA: Objection. Form.

23 Q. Would you consider Richardson's jump
24 starter to be operational after Step 200 in
25 Figure 3?

1 A. May I ask for a clarification of what
2 you mean by "operational."

3 Q. Well, how do you understand it? When
4 would you consider a jump starter to be
5 operational?

6 A. Well, there is the activation of the
7 electronics, and then there's also when it is --
8 when it has satisfied all of the safety checks
9 and current is actually flowing from the jump
10 starter into the subject vehicle battery. Those
11 were -- would be different events.

12 Q. So, for example, here on Figure 3, you
13 see Richardson goes through a number of
14 preliminary checks and then, ultimately, reaches
15 the main processing loop at 210?

16 A. Uh-huh.

17 Q. Would you consider Richardson to be
18 operational then?

19 MR. CHANDRA: Objection. Vague.

20 A. By the first definition, yes. But that
21 does not imply that the current is flowing from
22 the jump starter to the subject battery.

23 Q. Okay. Fair enough.

24 So if you look at Figure 6 on page 10 of
25 Richardson.

1 A. Okay. I'm there.

2 Q. It's Step 268 towards the bottom of that
3 page. The starter contact relay is closed.
4 Under your second definition, would you consider
5 then to only be operational at that Step 268?

6 MR. CHANDRA: Objection. Form.

7 A. Let me look at what happens before it.
8 Give me a moment, please.

9 Q. Yeah, sure.

10 A. Start attempts.

11 Yes. This is by the second definition,
12 as I clarified earlier.

13 Q. Okay. So just to recap, then, under
14 your first definition, you would consider Richard
15 to be operational after it's powered on, that
16 under the second -- your second definition, only
17 at Step 268; is that correct?

18 MR. CHANDRA: Objection. Misstates his
19 testimony.

20 A. They're -- approximately so. To be more
21 specific, Step 272, which follows 268 and then
22 270, confirms that current is flowing because it
23 says display starting current and auto LED on.

24 And that would confirm the conditions
25 that I set forward for the bifurcation of your

1 original question about "operational."

2 Q. And under your first definition, if you
3 turn to Figure 3 and confirm where, in your
4 opinion, Richardson becomes operational.

5 A. Back to Figure 3. It could be said that
6 the device is operational if its electronics are
7 working, which would follow as soon as you turn
8 the power on. Because the next step is
9 initialized in the microcontroller. And a number
10 of functions are checked, a number of things are
11 displayed. A self-test occurs at 208, et cetera.

12 Q. Okay. Will you turn back to your
13 declaration, please. Page 59.

14 Are you there?

15 A. Again, I apologize.

16 Q. No. Take your time.

17 A. I'm there now.

18 Q. Starting on page 59, you're addressing
19 what you refer to as Limitation 1[D] of Claim 1
20 of the '203 patent; is that correct?

21 A. That's correct.

22 Q. And Limitation 1[D] requires a vehicle
23 battery isolation sensor configured to detect
24 presence of the vehicle battery connected to the
25 jump starter apparatus, correct?

1 A. The sensor -- isolation sensor.
2 Positive and negative polarity.

3 Yes. I -- it's not clear from what's
4 written here whether that also incorporates the
5 safety check of confirming proper polarity, but
6 it could be inferred from what I've written here.

7 Q. If you want to confirm which limitations
8 are which, refer back to page 13 of your
9 declaration which shows all the elements.

10 A. Yes. I see that.

11 Q. Do you see down at 1[D], as you've put
12 them here, is a vehicle battery isolation sensor
13 configured to detect presence of the vehicle
14 battery connected to the jump starter apparatus.

15 A. Yes.

16 Q. Right?

17 A. That would appear to not necessarily
18 require that the polarity be correct.

19 Q. Right. Because that's addressed in Step
20 1[E]?

21 A. Correct. Although, I can tell you,
22 electronically, it would be pretty hard to do it
23 otherwise. Nor would you want to.

24 Q. What do you mean by that?

25 A. The battery may be present, but if it's

1 hooked up backwards, it may as well not be
2 present. It's not something you want to push any
3 charge into.

4 Q. Okay. You can turn back to page 59.

5 A. I am there.

6 Q. On paragraph 100, starting on page 59,
7 you conclude that Richardson teaches Limitation
8 1[D], correct?

9 A. Yes.

10 Q. Turn to page 60.

11 A. I'm there.

12 Q. In particular, in paragraph 101 on page
13 60, here you conclude, I quote, that:
14 Richardson's control system uses vehicle voltage
15 sensor 30 to monitor voltage received from the
16 vehicle system on line 37 to determine the
17 plugged or unplugged status of the jumper cables,
18 indicating whether a vehicle battery is present
19 (i.e., connected to the jump starter) or absent
20 (i.e., disconnected).

21 Correct?

22 A. Could you -- I want to make sure I'm in
23 the right paragraph. This is paragraph 101 on
24 page 60?

25 Q. Paragraph 101 on page 60. Could you

1 just read that paragraph to yourself, paragraph
2 101 on page 60.

3 A. Quietly or open?

4 Q. You can read it quietly.

5 A. Yes.

6 Q. Okay.

7 A. I have read it. Yes.

8 Q. Am I correct that your conclusion here
9 in paragraph 101 is that the vehicle voltage
10 sensor 30 in Richardson corresponds with the
11 vehicle battery isolation sensor in the
12 Limitation 1[D] of Claim 1?

13 A. I believe so. To make sure I
14 understand, could you please repeat the question.

15 Q. Am I correct that your conclusion is
16 that vehicle voltage sensor 30 in Richardson is
17 what you're referring to to correspond with the
18 vehicle battery isolation sensor that's recited
19 in Limitation 1[D] here in Claim 1?

20 A. Plugged or unplugged.

21 Yes, that is what is stated here.

22 Q. Okay. And then on the next page, do you
23 see paragraph 103? Can you read paragraph 103 to
24 yourself, and let me know when you're done.

25 A. Okay.

1 Q. And, in paragraph 103, you conclude that
2 the vehicle voltage sensor 30 -- sorry. You
3 conclude that the determination of the presence
4 of a non-dead battery is performed at Step 252 in
5 Figure 5 of Richardson, correct?

6 A. Go up. 252. Yes.

7 Q. Is it your opinion that this operation
8 in Step 252 of Figure 5 is being performed using
9 Richardson's vehicle voltage sensor 30?

10 A. This is the dead battery -- that is what
11 it said in the -- in paragraph 103. I see
12 semantic issues here already that I hope we don't
13 get tied up in.

14 Q. What are those?

15 A. Well, electronically, it makes sense to
16 use the same circuit to detect a number of
17 things, including is a battery connected. That
18 is, do you see something other than a zero
19 voltage. Is the battery of the correct polarity
20 with respect to the jump starter which would also
21 be done just by sensing voltage.

22 If the battery is dead, you would see a,
23 say, a slightly positive voltage, maybe around 2
24 volts for a nominal 12-volt SLI battery that
25 would indicate probably not worth trying to

1 revive this one.

2 So I suspect, electronically, that the
3 vehicle sensing components in the circuit are
4 actually shared between those functions, between
5 those tests.

6 Q. Let's take a look. Let's look at
7 Richardson. Turn to Exhibit 1005, Richardson,
8 and page 2, which is Figure 1. Let me know when
9 you're there.

10 A. Okay. I see it.

11 Q. So you can see the upper left of
12 Figure 1 is the vehicle voltage sensor that we
13 were referring to labeled 30.

14 Do you see that?

15 A. Yes.

16 Q. Then right above that is the reverse
17 voltage sensor, which is labeled 24.

18 Do you see that?

19 A. Yes.

20 Q. So --

21 A. They're on separate blocks, which is I
22 believe what you're attempting to conclude.

23 Q. I just want to make sure you're aware.

24 A. Yes. I do want to comment, these are
25 functioning blocks. It doesn't necessarily mean

1 that they are even different hardware.

2 Q. Okay. Fair enough.

3 Let's look at -- let's look at page 16
4 of Richardson. And, particularly, paragraph 34,
5 towards the bottom of the page.

6 Do you see that?

7 A. Just got on the page. Paragraph 34. I
8 am there. Yes.

9 Q. Can you go ahead and read paragraph 34
10 to yourself and let me know when you're finished,
11 please.

12 A. Okay. It is quite a long paragraph, so
13 this may take a while.

14 Q. Take your time.

15 A. Okay.

16 Q. Do you see paragraph 34 -- excuse me --
17 paragraph 34 discusses Step 252 that you were
18 referring to in your declaration?

19 Do you see that?

20 A. Yes. 252 is referenced towards the
21 bottom. It's the difference between the voltage
22 selected and the voltage measured. It is not
23 within a predetermined range and tolerance. 252,
24 a long selectable. Each message is displayed on
25 254.

1 Q. Can you just please explain to me what's
2 being described here in paragraph 34.

3 A. Richardson has a novel feature of using
4 jumpers. Or, frankly, a double pole double throw
5 switch would have done the same thing. Ability
6 to source with the same battery complement and
7 the jump starter are multiple voltages by
8 arranging its batteries either in a series or a
9 parallel configuration.

10 Now, if, for instance, it was still set
11 to deliver the output of those batteries in
12 parallel, they're both nominally 12-volt
13 batteries internally, the output of the jump
14 starter would be 12 volts. And if you pumped it
15 up, say, to a large piece of -- you know, like a
16 Cat D8 dozer, which has a 24-volt electric
17 system, it would kick back and say, as it states
18 here, long selector volts message in the display
19 254 and not proceed with attempting to charge a
20 battery at a lower voltage than the battery
21 itself.

22 Q. So it's correct that paragraph 34 is
23 describing a process to determine whether the
24 correct battery type has been connected?

25 A. Battery voltage, not type.

1 Q. Okay. And is the vehicle voltage sensor
2 30 mentioned anywhere in paragraph 34?

3 A. Please give me a moment to -- vehicle
4 voltage sensor 30.

5 I don't see a mention of -- I don't see
6 the number 30 appear. Excuse me. The item
7 number 30. I see 30 volts listed. So the way
8 you phrased your question, I would say you're
9 correct. It does not appear.

10 Q. Can you turn to page 9, Figure 5.

11 A. Okay.

12 Q. In Step 252, it's shown here towards the
13 bottom of Figure 5, correct?

14 A. Yes.

15 Q. And, again, it's your opinion that at
16 Step 252, Richardson determines the presence or
17 absence of a vehicle battery; is that right?

18 MR. CHANDRA: Objection. Misstates the
19 testimony.

20 A. Well, the -- this is a decision diamond
21 in a standard flow chart, and the decision being
22 made is vehicle volts within correct range.

23 Did that answer your question or...

24 Q. If you refer back to your declaration on
25 page 61.

1 A. I'm on page 61 now.

2 Q. And, in paragraph 103, you say: As a
3 POSITA would have understood, Richardson's device
4 makes a determination of the presence of a
5 non-dead battery at Step 252 of the processing
6 loop in connection with the operation of vehicle
7 voltage sensor 30.

8 Correct?

9 A. That's correct.

10 Q. Is that still your opinion?

11 A. Well, the test for a non-dead battery
12 and the test for a battery that is correctly
13 matched with this -- the survival of the jump
14 starter, they're almost identical operations.
15 Either way, it's an analogue test looking for a
16 voltage within a range in which the jump starter
17 can do its, its intended function. That is,
18 deliver current to that battery.

19 Now, that could occur if the jump
20 starter was providing, say, a slightly higher
21 voltage than the battery that is jump-starting.
22 If the battery that it is jump-starting is
23 fundamentally the long voltage, like a 24-volt
24 battery and the jump starter is set for 12 volts,
25 it would functionally be the same as -- I'm

1 seeing an incorrect voltage for this battery.
2 And the distinction between whether that's a dead
3 battery or an incorrect match with the battery is
4 electronically almost identical.

5 So it would be fair to say that in 252,
6 even though the POSITA certainly would have
7 understood that it's a non-dead battery, it's not
8 just a non-dead battery. It's a non-dead battery
9 of the correct voltage, either one of which are
10 absolutely necessary requirements to initiate
11 charging.

12 Q. Let's do it this way. Let's go ahead
13 and look back at Figure 5 of --

14 A. Yeah.

15 Q. Let me know when you're there.

16 A. Yes. I'm looking at it. And it
17 confirms what, in so many words, I attempted to
18 say. I can rephrase if you would like.

19 Q. Well, let's do it this way. Let's
20 assume that there's no battery connected.

21 A. Right.

22 Q. According to your interpretation, can
23 you explain to me what, then, would happen in
24 Step 252?

25 MR. CHANDRA: Objection.

1 A. There was no battery there --

2 Q. No --

3 A. -- that actually performs the test. But
4 assuming that it is a high impedance-type voltage
5 measurement, it would see that the measured
6 voltage is not in an acceptable range for it to
7 allow the initiation of charging.

8 Q. And then what would happen?

9 A. It wouldn't charge the battery.

10 And, in this case, Richardson adds that
11 it also optionally provides illumination of a
12 warning light saying I don't see a battery there.

13 Q. So it would go, then, to Step 254,
14 you're saying, to display the incorrect voltage
15 message?

16 A. I have to apologize for the poor
17 resolution in this image in the declaration. It
18 might be to our benefit to go back to Richardson.

19 Q. Yeah. Please look at Richardson, page
20 9.

21 A. Here we go. Let's see what would
22 happen.

23 Q. Let me know when you're there.

24 A. Yeah. I'm looking at it.

25 Q. Let's just try this again, then.

1 Assuming that there's no vehicle battery
2 connected. Explain to me, using the flow chart
3 on Figure 5, what would happen.

4 A. Well, ultimately, it would prevent -- it
5 would inhibit the charging of the battery by the
6 jump starter.

7 Q. So, specifically, in Step 252, if
8 there's no battery connected, in your opinion,
9 what happens there?

10 A. Well, it would follow the -- there's two
11 branch outputs of the decision diamond. To the
12 left is a "no," and it says: Display incorrect
13 voltage message.

14 In fact, the vehicle voltage is not
15 within the correct range, which means either
16 nothing is there or the battery is hooked up
17 backwards or the battery is dead. All of those
18 would qualify as the voltage not being in the
19 correct range. It would display the message
20 "incorrect voltage."

21 Q. Now we'll go to Step 256 in the loop
22 there until the correct voltage is selected is
23 what you're saying, right?

24 A. It would wait until the correct voltage
25 is selected. It would -- D. This is an

1 off-chart flow chart connector. I would have to
2 follow D back to tell you what happens after
3 that, but I can tell you, in the end, this
4 function is intended to inhibit the initiation of
5 charging or even the continuation of charging
6 since the loop runs continuously until an
7 acceptable voltage is detected.

8 Q. And if no voltage is detected?

9 A. Because it has the advertised ability,
10 claimed ability, to detect the presence of a dead
11 battery and inhibit charging if it sees no
12 voltage at all, which is an indication of either
13 a battery not connected or a battery that is
14 stone dead, then it would inhibit that, also.
15 That would not be a correct voltage.

16 Q. Okay. And still referring to Figure 5.

17 Back at 252, if it, if it is "yes," it
18 determines that the vehicle voltage is within the
19 correct range, then it moves on to block E,
20 correct?

21 A. Yeah. E. I have to follow E.

22 Q. E's a connector block, right? And that
23 connects to the flow diagram in the next page, 6,
24 right?

25 A. Correct. Yes.

1 Q. So then back to Step 252. If 252
2 determines that the vehicle voltage is within the
3 correct voltage range, then the process moves
4 over to Step 258 in Figure 6.

5 Did I get that right?

6 A. That's correct.

7 Q. And then, to recap, according to your
8 interpretation, without a vehicle battery
9 connected, Richardson's process can never get to
10 Step 258 in Figure 6, correct?

11 MR. CHANDRA: Objection.

12 A. Yes.

13 Q. Did you answer?

14 THE REPORTER: Was that "yes"?

15 THE WITNESS: "Yes."

16 Q. Now, Step 258 in Figure 6 is a decision
17 block, and it's labeled Manual Or Automatic Mode.

18 Do you see that?

19 A. Correct. It is not a software-driven
20 decision block; it appears to be the input of an
21 external switch on the jump starter.

22 Q. And if manual mode is true in Step 258,
23 it then moves to Step 332, correct?

24 MR. CHANDRA: Objection. Misstates
25 the --

1 Q. Go ahead.

2 A. It -- the right output of the diamond,
3 the path labeled manual goes to Step 332, Display
4 Manual Mode.

5 Did I catch that correctly?

6 Q. So if you're in manual mode, block 258,
7 it goes -- it branches right to Step 332?

8 A. Uh-huh. That's correct. Yes.

9 Q. Can you look at page 17 of Richardson,
10 please, and particularly at paragraph 47.

11 A. I just got there. I'm on 47. I'm
12 there.

13 Q. And this paragraph describes the manual
14 mode operation starting at Step 258 of Figure 6,
15 correct?

16 A. Yes, sir.

17 Q. And, specifically, it says: If manual
18 mode is selected, 258, manual is displayed, 332,
19 on the LCD 46. The system will prompt the
20 operator to press the manual button, 44, again.
21 If the manual button, 44, is pressed a second
22 time, 334, then the system checks the number of
23 start attempts, 266, right?

24 A. That's correct.

25 Q. So let's go back to Figure 6. Take a

1 look at that.

2 A. Okay.

3 Q. As we just read, Figure 6 shows that if
4 you're in manual mode in Step 258, the process
5 proceeds to Step 332 to display manual mode,
6 right?

7 A. That's correct.

8 Q. Then after Step 332, the process
9 requires the manual button to be pressed at Step
10 334, shown here, correct?

11 A. It indicates a test of whether the
12 manual button has been pushed again.

13 Q. This is where I was talking about
14 pressing it a second time, right?

15 A. That's correct. It appears to be
16 correct.

17 Q. And then after the manual button is
18 pressed a second time, the manual mode process
19 goes on here to Step 266, which is a decision
20 block where it determines whether the total start
21 attempts is greater than the number allowed per
22 the time limit.

23 Do you see that?

24 A. Yes.

25 Q. And then here at block 266, if the

1 answer is no, the process proceeds to Step 268
2 where you close the starter contact relay, right?

3 A. That's correct.

4 Q. As we previously went over, 268 is the
5 step where you close the jump starter relay and
6 the battery is jump started, right?

7 A. Starter contact relay. Yes.

8 Q. So do you agree, then, that the process
9 in Figure 6 that goes from Step 258 through Steps
10 332 and 334 and 266 and ultimately proceeds to
11 Step 268 is what Richardson refers to as the
12 manual mode?

13 A. It does appear that way, yes.

14 Q. Let's go to -- flip ahead to page 18,
15 please, of Richardson and find paragraph 49. Get
16 there, please.

17 A. Okay. I'm there.

18 Q. So here starting at the beginning of
19 paragraph 49, Richardson explains: If in manual
20 mode the jump starter, 10, may be used when the
21 battery voltage of the vehicle is below 10 volts
22 or if the vehicle's battery is not connected.

23 Correct?

24 A. It states that. Yes.

25 Q. So, in order for Richardson's jump

1 starter to be able to operate in manual mode when
2 the vehicle's battery is not connected, the
3 process would have to be able to get to Step 258
4 in Figure 6 when no battery is connected; isn't
5 that right?

6 A. I'm reading the first part of that
7 paragraph again, and then I'll refer to the
8 Figure 6. If -- the jump starter may be used...
9 Situation...

10 Forgive me. The paragraph is quite long
11 and it's all relevant.

12 THE REPORTER: Did you say "relevant"?

13 THE WITNESS: Yes.

14 A. Okay. I understand what's happening
15 here. I -- forgive me. I may have conflated the
16 latter part of your question, but I could tell
17 you what's happening here if --

18 Q. Go ahead.

19 A. This is one additional safety feature.
20 Essentially, it's intended to prevent someone
21 from continually trying to start a dead battery.
22 It watches for start attempts. There's a numeric
23 or a temporal limit, number of seconds or
24 something. And it has -- it describes a
25 mechanism whereby if you confirm that a starting

1 event had actually occurred by watching the
2 variation in the starter voltage, which will
3 fluctuate as the starter rotates, and it can
4 confirm that if after that a voltage now appears
5 that's consistent with the engine running, it
6 will display a start complete message and then it
7 goes into the wait loop for the auto button to be
8 pushed for the five-minute timeout.

9 I would presume that that is referring
10 to the fact that it is going to wait for the
11 operator to push the auto button to put it into
12 auto mode. Otherwise, it would encounter a
13 five-minute timeout.

14 Q. It says here that manual mode could be
15 used to start a battery that's depleted, the one
16 that's below 10 volts.

17 A. Correct.

18 Q. Manual mode could even be used if the
19 vehicle's battery is not connected, correct?

20 A. Or if the vehicle's battery is not --
21 what it's -- again, this is referring to my
22 attempt to explain before that, at some voltage,
23 whether it be 10 volts, which would indicate a
24 low battery, or zero volts, the latter part of
25 that sentence, or if the vehicle's battery is not

1 connected, which would read at zero, either one
2 of those is below the acceptable voltage
3 necessary to allow the charging of the battery.

4 But what this paragraph is saying is if,
5 if you go in the manual mode, you can essentially
6 override that. That's the whole purpose of
7 manual mode. Otherwise, the operator would
8 almost always use the auto mode.

9 Q. So, for example, if you had a very
10 depleted battery that is around zero volts, you
11 could use manual mode to force it to jump start
12 it even though it's --

13 A. To attempt to force it. But the reason
14 that they -- I'm sure you understand that the
15 reason to do this is -- first of all, excess
16 current could flow from the jump starter to the
17 battery in the case of the battery that is maybe,
18 say, at 8 volts but is accepting current. Or, in
19 the other extreme, no current at all is flowing
20 and it's -- you're sort of just wasting your time
21 if the battery isn't connected.

22 Q. So manual mode allows you to override,
23 for example, if the battery is below 10 volts?

24 A. That's correct.

25 Q. Or it would even work if the battery's

1 not connected at all, it says here, paragraph --

2 A. The exact words are later in the
3 paragraph: If the vehicle's battery is extremely
4 low or completely dead.

5 Q. Yes. So, certainly, if you have a
6 battery that's completely dead and reading zero
7 volts, manual mode will allow you to override an
8 attempt to jump start it?

9 A. It allows that possibility.

10 Q. But, in order for that possibility to
11 occur, the process has to be able to proceed to
12 Step 258 in Figure 6; isn't that correct?

13 MR. CHANDRA: Objection. Misstates his
14 testimony and the document.

15 A. Allow me to go back to Figure 6. Okay.
16 258. With apologies, could I ask you to restate
17 maybe with a bit more clarity the latter part of
18 your question.

19 Q. Do you agree that manual mode could be
20 used if the battery's at zero volts?

21 A. That paragraph indicates that it does
22 allow that possibility. That is the function of
23 manual mode. That, basically, it says you're on
24 your own. I'm not going to be -- I'm not going
25 to be checking on you to make sure that it meets

1 all the conditions required for the auto
2 operation.

3 When it is set in a manual push button,
4 it's pushed twice probably as an additional
5 precaution to make sure it wasn't just
6 accidentally bumped, then you can override the
7 previous voltage range tests that we were talking
8 about before by which the jump starter identifies
9 whether the battery is there and is chargeable or
10 is even the correct battery.

11 Q. And you've also agreed that the manual
12 mode process you just described starts at Step
13 258 on Figure 6 and proceeds from there --

14 MR. CHANDRA: Objection. Misstates his
15 testimony.

16 Q. -- correct?

17 A. I'll -- I believe I understand the
18 context of -- you're saying it starts there.
19 Yes. That is the block diagram in which -- the
20 block diagram element in which it is first
21 mentioned. So testing via a switch on the jump
22 starter at that point initiates or, as you say,
23 starts that process.

24 Q. The manual process?

25 A. Correct.

1 Q. And so my question was: In order for
2 the manual mode process to be used when the
3 battery is zero volts, the process would have to
4 be able to arrive at Step 258 with a battery that
5 has zero volts, correct?

6 MR. CHANDRA: Objection. Misstates
7 testimony.

8 A. Allow me to go back to Figure 5 in
9 which, presumably, that determination is made.

10 Well, the block E connector is fed out
11 of decision block 252, which says vehicle voltage
12 within correct range. And E is connected via the
13 yes, so, apparently, a determination has been
14 made that it is in an acceptable range.

15 I want to modify my response to your
16 immediately previous question because 248 does
17 include the statement manual auto button pushed.
18 So it's a test referring back to the later
19 process, Figure 6, of -- to determine if the
20 button had been pressed or not.

21 Q. But that doesn't really answer my
22 question.

23 My question was: In order for manual
24 mode to operate on a battery that's zero volts,
25 you have to be able to arrive at Step 258 with a

1 battery that has zero volts; isn't that correct?

2 MR. CHANDRA: Objection. Misstates his
3 testimony.

4 A. Restating your question to make sure I'm
5 answering the correct question.

6 If the vehicle has a dead battery, can
7 it get to the block in which you could, say, in
8 258, send it down the manual activation path.

9 Do I have that correct?

10 Q. Yes.

11 A. That does appear to be the path by which
12 the ultimate result of manual operation, which is
13 closing the contactor to allow that set switch,
14 whatever, to allow charging, the battery would be
15 activated.

16 Q. So you're saying if the battery was zero
17 volts, it would arrive at Step 258 in this
18 process?

19 MR. CHANDRA: Objection. Asked and
20 answered.

21 You've asked this question I think four
22 times now and he's given you answers. You should
23 probably move on.

24 Q. Go ahead, Professor.

25 A. Well, 252 is a test of vehicle volts

1 within the correct range. So that test must have
2 been satisfied before it gets to connector E, off
3 to Figure 6, and then it's testing the switch
4 again in manual automatic mode.

5 Q. It's really a simple question and a
6 yes-or-no question. I know you don't want to
7 answer it.

8 But the question is: Can you arrive at
9 Step 258 with a battery that has zero volts?
10 That's the question.

11 A. Oh, my apologies, then.

12 It does not appear from Step 252 of the
13 prior case that that is possible. That would,
14 that would be a volt -- a vehicle voltage outside
15 of the correct range.

16 Q. Well, then, how is it possible that if
17 in manual mode the jump starter, 10, may be used
18 when the battery voltage of the vehicle is below
19 10 volts or if the vehicle's battery is not
20 connected?

21 A. You're raising it being that it is being
22 blocked at 252 because it's out of the correct
23 range. And I see your point.

24 Q. So you're saying, under your
25 interpretation, that's not possible?

1 MR. CHANDRA: Objection. Misstates his
2 testimony.

3 A. Well, it does depend. And I would -- to
4 get to the bottom of this question, I'd like to
5 determine definitively what is meant by vehicle
6 voltage within the correct range because that
7 correct range could exclude the zero -- the,
8 basically, zero voltage case or the no battery
9 present case.

10 But if one assumes that this decision --
11 vehicle volts within correct range inside the
12 decision diamond, 252, includes the possibility
13 of reading zero voltage at the battery which
14 could occur either if the battery is not
15 connected or if the battery is so stone dead that
16 it is still -- it is reading zero, that that
17 would prevent you from going into manual mode,
18 which I believe is your question.

19 Q. Thank you.

20 Let's go back to your declaration at
21 page 66, please. Let me know when you're there.

22 A. I am there.

23 Q. Starting on page 66 of your declaration.
24 You're now addressing what you referred to as
25 Limitation 1[G] of Claim 1 of the '203 patent,

1 right?

2 A. That's correct.

3 Q. Limitation 1[G] is reproduced here on
4 page 66. Do you see that?

5 A. Reproduced here.

6 Q. In the heading.

7 A. Yes. Limitation 1[G], wherein the power
8 switch is, et cetera?

9 Q. Yeah. Can you go ahead and read that
10 limitation to yourself. And let me know when
11 you're done.

12 A. Okay. Got it. Yep.

13 Q. According to your understanding, what
14 does Limitation 1[G] require?

15 A. It requires that a battery be connected,
16 and in which case a voltage reading of it would
17 be something other than zero, presumably. Or --
18 excuse me. In this case, it's an "and"
19 condition. And that the polarity is correct.

20 That is, the voltage is slightly
21 positive. The composite of the two is basically
22 that type of measurement, which I was attempting
23 to explain before when I said, functionally,
24 these are probably done by the same electronic
25 components.

1 Q. But this claim limitation is saying that
2 the power switch can't be closed until the two
3 conditions are true, right?

4 MR. CHANDRA: Objection. Misstates the
5 limitation.

6 A. Oh, I see some ambiguity in power
7 switch. Because I recall earlier power switch
8 referred to the -- basically, the thing that
9 turned on the entire jump starter.

10 I believe this refers to the switch that
11 is closed that allows current to flow into the
12 vehicle battery.

13 Q. Right.

14 And Limitation 1[G] calls that the power
15 switch, wherein the power switch is controlled,
16 based on signals from the vehicle battery
17 isolation sensor and the reverse polarity sensor.

18 A. Uh-huh.

19 Q. Thus, the power supply is connected to
20 the vehicle battery when both conditions I and --

21 A. Yes.

22 Q. -- II are true, right?

23 A. Got it. Yes.

24 Q. All right. Let's look back at
25 Richardson, please. And page 10 of Richardson --

1 and we're going to go back to our Figure 6. Let
2 me know when you're there.

3 A. Okay. I'm there.

4 Q. And we agreed that the contact relay in
5 Richardson is closed at Step 268, right?

6 A. Yes.

7 Q. And then after Step 268, the process
8 flows through 270 and through 272, and then it
9 goes to this connector block F, right?

10 A. That's correct.

11 Q. And F takes us over to Figure 7 and to
12 Step 274, right? Do you see that?

13 A. Correct.

14 Q. And the process in Figure 7 ultimately
15 flows down through a number of steps to Step 302.
16 Do you see that?

17 A. I see that. There's several safety
18 checks that are done between 270 and 302.

19 Q. Sure.

20 And Step 302, it's checking for whether
21 the jumper cables are unplugged, correct?

22 A. That's what it states inside the
23 decision diamond.

24 Q. And you agree that Step 302 in Figure 7
25 occurs after the contact relay has already been

1 closed in Step 268?

2 A. The decision is made at a time when the
3 contact relay is closed because the battery is
4 presumably charging up to that point. And in
5 302, it's determining whether suddenly somebody
6 pulled the jumper cables.

7 Q. And let's just go ahead and look at the
8 description of that on page 17, Figure -- or
9 paragraph 41. Page 17, paragraph 41, please. Go
10 ahead and read that paragraph to yourself when
11 you get there. Paragraph 41.

12 A. Okay. I'm reading now.
13 I've read it.

14 Q. What's described in paragraph 41?

15 A. You're asking me to maybe in more plain
16 language describe what it states?

17 Q. Yeah. What's going on there?

18 A. Well, it appears that it's pretty clear
19 that if charging is occurring and one of the
20 jumper cables is either deliberately or
21 accidentally disconnected, it's going to detect
22 an instantaneous increase in the voltage that it
23 measures across the contact relay, suggesting
24 that the load on the battery has been removed, so
25 the voltage would increase.

1 And it would open, therefore, the
2 contact relay and eliminate the fault LED, 56.
3 It would then wait for the operator to elect
4 either -- it may return to ready mode if the
5 automatic button, 42, is pressed by the operator.
6 And, apparently, it has a provision for
7 automatically initiating automatic mode after
8 five minutes.

9 Q. And it tells us here that this is being
10 done using the starter battery voltage, 20, and
11 the voltage measured, 30, right?

12 A. That's correct. That's the voltage
13 across the contactor relay, just to be clear.

14 Q. And, as we established, this doesn't
15 occur until after the contact relay has already
16 been closed in Step 268, right?

17 A. The system detects -- the system detects
18 an increase in the difference between the
19 measured jumper volt.

20 Q. At the end of that page, it's referring
21 to --

22 MR. CHANDRA: Could you let him finish
23 his answer before you jump in.

24 Q. It's referring to disconnected 302
25 there, which is Step 302.

1 Do you see that?

2 A. Which page are you referring to now?

3 Q. Paragraph 41 at the bottom refers to
4 Step 302. Do you see that?

5 A. Oh, yeah. The paragraph continues to
6 the next column, which is where I was looking.

7 Q. Sure.

8 A. Indicating it has been disconnected,
9 302. Yes.

10 Q. So this is happening, Step 302, which
11 we've established is after the contact relay has
12 already been closed at Step 268, right?

13 A. That would have to be the case because
14 charging is in process.

15 MR. SAUER: Okay. We'll take a
16 ten-minute break.

17 THE REPORTER: Off the record.

18 (A recess was taken.)

19 BY MR. SAUER:

20 Q. We're back.

21 Did you communicate with anybody over
22 the break, Doctor?

23 A. No.

24 Q. Just a couple more questions. Let's go
25 back to your declaration, page -- starting on

1 page 81. Are you there?

2 A. Give me a moment. I closed that
3 document.

4 Declaration. Okay. I'm there.

5 Q. Starting on page 81, the declaration,
6 and continuing through page 101. You're
7 addressing Ground 4 of the petition which alleges
8 that Claims 1, 3 through 5, and 9 are
9 unpatentable over Yu in view of Paparrizos.
10 Right?

11 A. That's correct.

12 Q. I'm not sure if I said that correctly,
13 but...

14 Can you pull up Exhibit Yu, which is
15 Exhibit 1008, please.

16 (Deposition Exhibit 1008, Utility Model
17 Patent, was marked for purposes of
18 identification.)

19 A. Let's see.

20 MR. CHANDRA: Just so we're clear, I
21 believe this is the translation of Yu?

22 MR. SAUER: Yes. Exhibit 1008 is --
23 we're talking about Deltran, for the record,
24 Exhibit 1008, which is the English translation of
25 Chinese Utility Model Patent CN 203211234U.

1 A. Yes. I have it open.

2 Q. This is the same Yu reference that you
3 addressed in your declaration?

4 A. Yes.

5 Q. Did you review this in preparation for
6 your declaration, in the preparation of your
7 declaration?

8 A. I reviewed it at one time, but it was
9 not among the materials that I reviewed because
10 it isn't -- it wasn't one of the documents that I
11 specifically reviewed before this deposition, but
12 I am prepared to comment on it.

13 Q. But you can say to yourself you're
14 familiar with the technology described in Yu?

15 A. Yes.

16 Q. Just do this. Turn to page 11 of Yu.
17 There's some figures. See that?

18 A. I see that.

19 Q. Figure 7 in particular has a port that's
20 labeled 8.

21 Do you see that?

22 A. That's correct.

23 Q. I believe that's a USB port?

24 A. That is a USB A female socket.

25 Q. Okay. And then Figure 9 has a port

1 that's labeled 10.

2 Do you see that?

3 A. I see that.

4 Q. That's a DC barrel plug?

5 A. It is one of many DC barrel plug
6 connectors. Yes.

7 Q. It's an input port, right?

8 A. It's says -- the writing is a little
9 blurred, but yes, it says "input."

10 MR. SAUER: I don't have any other
11 questions. Pass the witness.

12 MR. CHANDRA: I have no questions on
13 direct.

14 MR. SAUER: Thank you, Doctor.

15 THE WITNESS: Yep. Thank you.

16 THE REPORTER: Off the record.

17 (Signature is not waived.)

18 (Deposition concluded at 1:34 p.m.)

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May 20, 2025

To: Chetan Chandra, Esq.

Case Name: Deltran USA LLC v. The NOCO Company

Veritext Reference Number: 7327545

Witness: C. Arthur MacCarley, PhD Deposition Date: 5/13/2025

Dear Sir/Madam:

Enclosed please find a deposition transcript. Please have the witness review the transcript and note any changes or corrections on the included errata sheet, indicating the page, line number, change, and the reason for the change. Have the witness' signature notarized and forward the completed page(s) back to us at the Production address shown above, or email to production-midwest@veritext.com.

If the errata is not returned within thirty days of your receipt of this letter, the reading and signing will be deemed waived.

Sincerely,
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DEPOSITION REVIEW
CERTIFICATION OF WITNESS

ASSIGNMENT REFERENCE NO: 7327545

CASE NAME: Deltran USA LLC v. The NOCO Company

DATE OF DEPOSITION: 5/13/2025

WITNESS' NAME: C. Arthur MacCarley, PhD

In accordance with the Rules of Civil
Procedure, I have read the entire transcript of
my testimony or it has been read to me.

I have made no changes to the testimony
as transcribed by the court reporter.

Date C. Arthur MacCarley, PhD

Sworn to and subscribed before me, a
Notary Public in and for the State and County,
the referenced witness did personally appear
and acknowledge that:

They have read the transcript;
They signed the foregoing Sworn
Statement; and

Their execution of this Statement is of
their free act and deed.

I have affixed my name and official seal

this _____ day of _____, 20____.

Notary Public

Commission Expiration Date

DEPOSITION REVIEW
CERTIFICATION OF WITNESS

ASSIGNMENT REFERENCE NO: 7327545

CASE NAME: Deltran USA LLC v. The NOCO Company

DATE OF DEPOSITION: 5/13/2025

WITNESS' NAME: C. Arthur MacCarley, PhD

In accordance with the Rules of Civil Procedure, I have read the entire transcript of my testimony or it has been read to me.

I have listed my changes on the attached Errata Sheet, listing page and line numbers as well as the reason(s) for the change(s).

I request that these changes be entered as part of the record of my testimony.

I have executed the Errata Sheet, as well as this Certificate, and request and authorize that both be appended to the transcript of my testimony and be incorporated therein.

Date C. Arthur MacCarley, PhD

Sworn to and subscribed before me, a Notary Public in and for the State and County, the referenced witness did personally appear and acknowledge that:

They have read the transcript;
They have listed all of their corrections in the appended Errata Sheet;
They signed the foregoing Sworn Statement; and
Their execution of this Statement is of their free act and deed.

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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

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THE ABOVE RULES ARE CURRENT AS OF APRIL 1, 2019. PLEASE REFER TO THE APPLICABLE FEDERAL RULES OF CIVIL PROCEDURE FOR UP-TO-DATE INFORMATION.

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COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

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