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1 IN THE UNITED STATES DISTRICT COURT
2 FOR THE EASTERN DISTRICT OF TEXAS
3 MARSHALL DIVISION
4 WESTPORT FUEL SYSTEMS)
CANADA, INC.,)
5 PLAINTIFF,)
6 VS.) CASE NO.
7) 2:21-CV-00455[JRG-RSP]
8 NISSAN NORTH AMERICA,) (LEAD CASE)
9 INC.,)
10 DEFENDANT.) JURY TRIAL DEMANDED
11)
12)
13)
14) CASE NO.
15 GENERAL MOTORS, LLC,) 2:21-CV-00456[JRG-RSP]
16 DEFENDANT.) (LEAD CASE)
17)
18) CONSOLIDATED CASE
19)
20)
21)
22)
23)
24)
25)

14 ORAL DEPOSITION OF J. MATT QUINLAN, PH.D.
JANUARY 12, 2023

15 *****

16 ORAL DEPOSITION OF J. MATT QUINLAN, PH.D.,
17 produced as a witness at the instance of the Plaintiff and
18 duly sworn, was taken in the above styled and numbered
19 cause on Thursday, January 12, 2023, from 10:05 a.m. to
20 12:42 p.m., before SARA BIELAMOWICZ, CSR, RPR, in and for
21 the State of Texas, reported by computerized stenotype
22 machine via Zoom Videoconferencing. The witness is
23 located at 4880 Sandstone Drive, Monument, Colorado,
24 pursuant to the Federal Rules of Civil Procedure and any
25 provisions stated on the record herein.

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12 EXHIBITS

13 NO. DESCRIPTION PAGE

14 Exhibit 1 '829 Patent, WP-GM000231-000246 6

15 Exhibit 2 '138 Patent, WP-GM000551-000565 6

16 Exhibit 3 P.R.4-3 Report of Dr. J. Matt Quinlan in Support of Defendant General Motors, LLC's Claim Construction Positions 6

17 Exhibit 4 June 20, 2021 Office Action Response, WP-GM000190-000197 18

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19 Exhibit 6 '829 Patent, Figures 1 & 2 58

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21 Exhibit 8 '138 Patent, Figures 1 & 2 58

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23 REPORTER'S NOTE:

24 All quotations from exhibits are reflected in the manner in which they were read into the record and do not necessarily denote an exact quote from the document.

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1 APPEARANCES

2 FOR THE PLAINTIFF:

3 Mr. Eric Wade
4 Ms. Shelby Payne
5 PORTER HEDGES LLP
6 1000 Main Street, 36th Floor
7 Houston, Texas 77002
8 713.226.6000
9 Ewade@porterhedges.com
10 Spayne@porterhedges.com
11

12 FOR THE DEFENDANT GENERAL MOTORS:

13 Mr. Dennis J. Abdelnour
14 HONIGMAN LLP
15 155 North Wacker Drive, Suite 3100
16 Chicago, Illinois 60606-1734
17 312.701.9348
18 dabdelnour@honigman.com
19

20 FOR THE DEFENDANT FORD MOTOR COMPANY:

21 Mr. Andrew Ligotti
22 ALSTON & BIRD LLP
23 90 Park Avenue, 15th Floor
24 New York, New York 10016-1387
25 212.210.9400
andy.ligotti@alston.com

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1 REPORTER: This deposition of J. Matt
2 Quinlan, Ph.D., is being conducted remotely via
3 LegalView/Zoom. The witness is located in Monument,
4 Colorado. My name is Sara Bielamowicz, CSR No. 4838.
5 J. MATT QUINLAN, PH.D.,
6 HAVING BEEN DULY SWORN, TESTIFIED AS FOLLOWS:
7 EXAMINATION
8 BY MR. WADE:
9 Q. Good morning, Dr. Quinlan. How are you?
10 A. I'm very well. You?
11 Q. Good. My name is Eric Wade. I'm joined by my
12 colleague Shelby Payne with the law firm of Porter Hedges,
13 and we represent Westport Fuel Systems in this case.
14 Do you understand that?
15 A. Yes.
16 Q. We're going to ask you a series of questions
17 today about a report that you wrote concerning claim
18 construction. Do you understand that?
19 A. Yes.
20 Q. Very good. Is the CV that is attached to your
21 expert report, Exhibit A, is it a current and complete CV?
22 I'm going to enter this as an exhibit, but I just wanted
23 to ask some preliminary questions.
24 A. Yes, I believe it is a current CV.
25 Q. Is this the first time that you've served as an

1 expert witness? 2 A. That is correct. 3 Q. Is this the first time you've drafted an expert 4 report? 5 A. Yeah, this is the first claim construction 6 document I have worked on. 7 Q. Have you ever provided deposition testimony 8 before? 9 A. I have not. 10 Q. Have you ever provided testimony under oath in a 11 court setting such as a hearing or trial or maybe at an 12 arbitration proceeding? 13 A. I have not. 14 Q. Given that, let me go over a few basics. 15 You were sworn by the court reporter just a 16 few minutes ago, and we're taking this virtually. 17 Traditionally we do this in person, but we are doing it 18 virtually today. 19 It is very important that you let me finish 20 my question before you start answering, and I'm going to 21 do my very best to finish your answer before I give you my 22 next question or follow-up, okay? 23 A. Great. 24 Q. And given that we are recording every word that 25 is said, I ask that you answer with oral word answers.	Page 5 1 team on that. 2 Q. Did they provide you with the legal standards 3 that are recited in your report? 4 A. Yes, they instructed me on the legal standards to 5 use in the case. 6 Q. If you had to break down what portions of the 7 report were yours and what portions of the report you 8 received from legal counsel, how would you do that? 9 MR. ABDELNOUR: Objection, form. 10 Q. (BY MR. WADE) Dr. Quinlan, counsel may lodge an 11 objection to make sure it is on record. Unless he 12 instructs you otherwise, go ahead and answer the question 13 because the objections will be handled. 14 REPORTER: Mr. Quinlan, I cannot hear his 15 question if you are answering during his question. 16 A. The whole report is my report and fully belongs 17 to me. The lawyers instructed me on the legal standards 18 that I needed to use, and we worked together on that. 19 Q. (BY MR. WADE) Did you have any colleagues at 20 your university review the report? 21 A. No, I did not. 22 Q. Did you have any colleagues in your employment 23 help you get any research that you incorporated into your 24 report? 25 A. No.
Page 6 1 Head shakes don't transcribe well in the transcript, 2 meaning some of the guttural noises we're all used to 3 making in common speech don't translate very well. So if 4 it's a yes, answer "yes"; if it's a no, answer "no." 5 If you don't understand any of my questions, 6 please ask me and I'll rephrase, but I'll assume if you 7 answered my question, you understood it, okay? 8 A. All right. 9 Q. This is not meant to be an endurance test. We'll 10 take a couple breaks. If you need a break, you may ask 11 for one, but I ask that we complete your answer to any 12 pending question before we take a break, fair? 13 A. Yes. 14 (Exhibits 1-3 marked.) 15 Q. (BY MR. WADE) Very good. All right. I'm going 16 to mark three exhibits in the deposition. Exhibit 1 will 17 be the '829 Patent, Exhibit 2 will be the '138 Patent, and 18 Exhibit 3 will be your expert report with the Attachments 19 A, B, and C. 20 A. Great. 21 Q. I'm sure I'll be referring to those throughout 22 the examination. 23 Did you have any assistance writing your 24 expert report? 25 A. I wrote the report, but I worked with my legal	Page 8 1 Q. In the context of interpreting patent claims, do 2 you appreciate that there is a difference between 3 intrinsic evidence and extrinsic evidence? 4 A. I understand the difference between the intrinsic 5 record and the extrinsic record, yes. 6 Q. What do you consider to be the intrinsic record? 7 A. The patent itself, the claims, most importantly, 8 and then the investigations and figures and embodiments, 9 the patent history, prosecution history is the intrinsic 10 evidence. 11 Q. Would other potential sources of information be 12 extrinsic evidence? 13 A. Extrinsic evidence would be, for example, you 14 know, a dictionary or other types of publications from the 15 time period or expert witness testimony. 16 Q. Other than the dictionary definitions that you 17 cited in your report, and you attached a few pages of 18 dictionaries to your report, did you rely upon any other 19 extrinsic evidence to arrive at the opinions offered in 20 your report? 21 A. So you can see in Section 2 of my report what 22 the -- what the materials I reviewed, and you can see 23 that -- I believe that all of the A through D listed there 24 are intrinsic and E through F is extrinsic. 25 Q. Only the dictionary definitions of the extrinsic

Page 9 1 evidence you reviewed in preparation for your report, 2 correct? 3 MR. ABDELNOUR: Objection to form. 4 A. That is my understanding. 5 Q. (BY MR. WADE) You understand that terms in a 6 patent are generally given their ordinary and customary 7 meaning? 8 MR. ABDELNOUR: Objection to form. 9 A. With serious exceptions, yes, I do understand 10 that we should be reading a patent if -- with plain and 11 ordinary language unless, you know, there are a few 12 conditions that we make exceptions for. 13 Q. (BY MR. WADE) What is your understanding of the 14 conditions that allow for exceptions that you claim 15 ordinary meaning of a term? 16 A. So we -- the two conditions that were set forth 17 for me is that if the patent key acts as their own 18 lexicographer, so clearly states that, say, for example, 19 "I put this word in quotations," and then say, "With 20 regards to this patent, I defined this term as" and make 21 that very clear. 22 And the second, if the patentee had to 23 disavow some full scope of the term in order to -- 24 basically during the prosecution history. 25 Q. And in your report, I believe you offered the	Page 11 1 actuating" -- "actuating forces but not employed to 2 generate an actuating force," yes. 3 Q. And in the '829 Patent, in claim 1(e), it reads 4 that "a hydraulic link assembly comprising a passive 5 hydraulic link having a hydraulic fluid thickness through 6 which said opening and closing forces are transmitted," 7 and that continues throughout.. 8 A. Make sure that I'm on the same page as you here. 9 So the '829 Patent, 1(e). Is that correct? 10 Q. Yes. 11 A. And so where are you starting from? 12 Q. One second. 1(e). It's the beginning -- it's 13 the beginning of that claim. 14 A. Okay. Until where? 15 Q. Until "are transmitted." Read until the first 16 comma. 17 A. The first column in -- what exactly are we 18 talking about? 19 Q. Sorry. First comma. 20 A. Oh. First comma. Okay. 21 Q. Have you had a similar passage in the '831 -- the 22 '138 Patent in claim 1(e), correct? 23 MR. ABDELNOUR: Objection to form. 24 A. Yes, if I look at the '820 -- or the '138 Patent 25 claim 1(e), it has very similar language.
Page 10 1 proposed claim sheet construction report terms or phrases, 2 correct? 3 A. Yes, I have offered four -- four claim 4 constructions. 5 Q. Let's look at the first one. That's "passive 6 hydraulic link." And do you have -- I'm going to ask you, 7 do you have your report and the two patents available to 8 you? 9 A. I do. I have clean copies of each one here. 10 Q. Do you have any other resources in front of you? 11 A. I do not. 12 Q. And so would it be okay with you, rather than to 13 post stuff on the screen, we refer to your report that you 14 have in front of you and the patents you have in front of 15 you? 16 A. As long as it is clear what we are talking about, 17 that's fine. 18 Q. If we need to put something on the screen, we 19 will. 20 A. Okay. 21 Q. So in your proposed construction of passive 22 hydraulic link, you offer a definition that is "sealed 23 hydraulic fluid transmitting actuating forces but not 24 employed to generate an actuating force," correct? 25 A. I have "a sealed hydraulic fluid transmitting an	Page 12 1 Q. (BY MR. WADE) In your definition you proposed 2 that it must be a sealed hydraulic fluid. What does that 3 mean? What does "sealed hydraulic fluid" mean? 4 A. While the actuator is doing its job trying to 5 actuate the injector, the passive hydraulic link must 6 transmit the fluid; it must transmit the opening and 7 closing portions of the needle valve. And to do that -- 8 in order to do that, it can't just be opened to the world, 9 right? And so it must be effectively sealed during that 10 period of time. 11 Q. If you look at claim 4 of the '829 Patent, that 12 claim adds to the injection valve in claim 1 or "in said 13 hydraulic link assembly comprises a fluidly sealed 14 hydraulic cylinder that is fluidly sealed from said 15 interior chamber." And then it continues on. 16 Do you see that? 17 A. I do see that. What I see is that -- 18 MR. ABDELNOUR: Wait -- I'm sorry. Wait for 19 the question that's pending. 20 Q. (BY MR. WADE) Is a fluidly sealed hydraulic 21 cylinder the same as a sealed hydraulic fluid, as used in 22 the proposed claim construction? 23 MR. ABDELNOUR: Objection to form. 24 A. You're asking if a fluidly sealed hydraulic 25 cylinder is the same as what?

Page 13 1 Q. (BY MR. WADE) As the sealed hydraulic fluid used 2 in your proposed claim construction? 3 A. I don't think that a fluidly sealed hydraulic 4 cylinder is the same as a sealed hydraulic fluid. One is 5 speaking about maybe the fluid and one is speaking about 6 the larger assembly. 7 Q. Which one is speaking about the fluid and which 8 one is speaking about the assembly? 9 A. Well, if it's just a sealed fluid, it would be 10 talking about the fluid, where the fluidly sealed 11 hydraulic cylinder and pistons that go along with it would 12 be maybe part of an assembly. 13 Q. What seals the fluid in your proposed definition 14 of passive hydraulic claim? 15 A. Well, that's separate from claim 4. So is that 16 what you want to discuss? 17 Q. Yeah. I want to know what -- what creates the 18 seal or causes a seal of the hydraulic fluid in your 19 proposed claim construction? 20 A. Okay. As the embodiment and the figures show in 21 this particular patent, it's between the needle 114 and 22 the kind of housing around that 160, and there's a sort 23 of -- a diametral fit on those parts that allows when the 24 actuator to be actuated that the pressure transmits the 25 force across 164b.	Page 15 1 A. I think that basically the whole of part 1(e) 2 tells me that exactly. It says that the forces are 3 transmitted through the fluid and it substantially acts as 4 a solid, so it must be sealed. 5 Q. (BY MR. WADE) Going back to what we touched on 6 earlier in claim 4, how is fluidly sealed, as that term is 7 used in claim 4, different from sealed as you proposed in 8 your claim construction? 9 MR. ABDELNOUR: Objection to form, asked and 10 answered. 11 A. I believe that a person of the ordinary skill in 12 the art would read fluidly sealed or thinking sealed when 13 talking about a fluid system to mean the same thing. 14 Q. (BY MR. WADE) Let me make sure I understand your 15 answer. You're saying that a person of the ordinary skill 16 in the art would read fluidly sealed and sealed as the 17 same thing? 18 A. I would -- a person would read this fluidly 19 sealed as the same as sealed with regards to a fluids 20 containing -- you know, fluid system; yes. 21 Q. Are there any portions of the '829 specification 22 that you're relying on for your opinion regarding having 23 the definition be a sealed hydraulic fluid? 24 A. I'm relying on the entire patent for that, but I 25 have specific examples that I have outlined in my
Page 14 1 Q. Is there any other basis for your opinion other 2 than what you viewed in the embodiment shown in the 3 patent? 4 MR. ABDELNOUR: Objection to form. 5 A. No. The entire -- you know, the entire 6 extrinsic, intrinsic evidence shows this to be consistent. 7 So this says that the claims are consistent, the 8 specifications are consistent, the embodiments are 9 consistent, the figures are consistent. 10 Q. (BY MR. WADE) Is there any particular language 11 in claim 1 of the '829 Patent that you believe requires a 12 definition as you proposed for the passive hydraulic 13 claim? 14 MR. ABDELNOUR: Objection to form. 15 A. So my -- looking at this, the claim 1, part (e), 16 requires that -- that the force be transmitted through 17 this passive hydraulic link, and it does so while keeping 18 the fluid thickness substantially the same. And thus, I 19 think that this -- it's my opinion that this -- this 20 volume must be sealed during that time. 21 Q. (BY MR. WADE) Is there any particular text in 22 claim 1 that you believe requires a limitation that it be 23 a sealed hydraulic fluid? 24 MR. ABDELNOUR: Objection, form, asked and 25 answered.	Page 16 1 document. 2 Q. And identify the portion of the specification 3 that you're relying upon for the requirement that it be a 4 sealed hydraulic fluid? 5 MR. ABDELNOUR: Objection, form. 6 A. Well, again I'm relying on the entire document, 7 the entire patent history, all of the evidence, but 8 specifically, paragraph 102 points to both the patent -- 9 the '829 Patent and the '138 Patent. 10 Q. (BY MR. WADE) Paragraph 102, you're referring to 11 in your report? 12 A. Yes, I am. 13 Q. And you're referring to the -- is the column and 14 line references to the '829 Patent and the '138 Patent at 15 the end of paragraph 102 in your report? 16 A. Well, the quoted portion that -- in addition to 17 that, yes. 18 Q. So all of paragraph 102 in your report? 19 A. Well, all of paragraph 102 didn't come from the 20 patent, but this is where -- one of the examples of where 21 I am using the patent's specification to support my view. 22 Q. As a -- I believe you have opined that you're a 23 person of ordinary skill in the art of the relevant 24 technology in your report, correct? Or at least a person 25 of the ordinary skill in the art, right?

Page 17 1 A. Yes, I believe I am at least a person of ordinary 2 skill in the art. 3 Q. As a person of ordinary skill in the art, are 4 there any sections of the '829 Patent that in your opinion 5 clearly express an intent by the patentee to limit passive 6 hydraulic link described in claim 1 to only sealed 7 embodiments? 8 MR. ABDELNOUR: Objection, form. 9 A. So I believe if you look at the quoted portion of 10 paragraph 102, I think you can see that they are looking 11 at only sealed systems. That's exactly what that phrase 12 is telling us. 13 Q. (BY MR. WADE) And the reference is to -- the 14 patents in paragraph 102 of the report are references to 15 the specification sections, correct? 16 A. These are references to the specification, but I 17 believe that the document reads consistently throughout. 18 Q. So is it your opinion that the document -- 19 passive hydraulic link described in claim 1 should only be 20 sealed embodiment, so there cannot be an unsealed 21 embodiment you still read in your claims? 22 Is that your opinion? 23 MR. ABDELNOUR: Objection to form. 24 A. I believe that between the patent, the 25 prosecution history and the other evidence, it is my	Page 19 1 that better? 2 MR. ABDELNOUR: That's better, thanks. 3 You'll probably have to scroll a little bit, but that's 4 better. I appreciate that. 5 Q. (BY MR. WADE) So, Dr. Quinlan, this is the piece 6 of the prosecution history that you're referencing in 103, 7 correct, paragraph 103? 8 A. June 20, 2001, page 4. Would you mind scrolling 9 to page 1 of this portion of the response? 10 Q. Okay. 11 A. Okay. Down a little bit, and the next page, and 12 the next page as well, and the next page. All right. 13 Q. Do you need (audio distortion) -- 14 A. Excuse me? 15 Q. Do you need to review any other portions of it? 16 A. Maybe scroll to the next page just so I make sure 17 that I know where we're -- 18 Q. I think we're in the remarks section. 19 A. Yeah. Yeah. Okay. That's fine. 20 Q. In your report you reference a sentence on page 4 21 of the amendment and request for reconsideration, and 22 specifically that none of the cited references, including 23 O'Neill, disclose or suggest a passive hydraulic link, as 24 defined in the present specification. 25 Do you see that?
Page 18 1 opinion that -- that the -- that the passive hydraulic 2 link must be sealed in order for it to transmit its force 3 to open and close the needle that controls the fuel 4 injection into the combustion chamber connecting those 5 passages. But, yes, that's what's required. 6 Q. (BY MR. WADE) You referred to the patent 7 prosecution history, and in your report, at 8 paragraphs 103, 104, 105 you referenced under the 9 prosecution history for both patents at issue, correct? 10 A. Yes, it looks like paragraphs 104 through 106 11 refer to the prosecution history. 12 Q. And 103 as well, right? 13 A. Yes. 14 Q. With regard to the response dated June 2021, 15 that's part of the '828 prosecution history. Let's look 16 at that. We're just going to mark this as Exhibit 4. 17 (Exh bit 4 marked.) 18 Q. (BY MR. WADE) You see that, Dr. Quinlan? 19 A. I do. 20 Q. And this is the portion of the prosecution 21 history that you're referencing in paragraph 103, correct? 22 MR. ABDELNOUR: Take your time with the 23 document, and if you need to see the context, you can see 24 the context. Can you make the language bigger, Counsel? 25 MR. WADE: Yeah, I think we can. Yeah, is	Page 20 1 A. I mean, would you highlight the text, or at least 2 point to it? 3 Q. Second sentence in the second paragraph. The 4 sentence that I'm kind of highlighting over, do you see 5 that? 6 A. Yeah, I'm with you there. 7 Q. In your opinion, is this language that you refer 8 to act as a disavow by the patentee of an unsealed 9 hydraulic link? 10 A. No. How I'm seeing this document right now, it 11 appears that this is just stating background for the 12 reviewer that the applicants believe that they have a -- a 13 piece which they're going to call their invention. 14 REPORTER: Or their what, I'm sorry, Dr. 15 Quinlan? 16 A. They have a piece of -- you know, a concept that 17 they're going to call their specific invention. 18 Q. (BY MR. WADE) Is there any text in the June 2001 19 amendment and request for reconsideration that we marked 20 as Exhibit 4 that you believe is intended as a disavow by 21 the patentee as an unsealed hydraulic link? 22 MR. ABDELNOUR: Objection to form. 23 A. So I think you're going to have to ask your 24 question again because I think that it seems like there's 25 a double negative there, and I'm not understanding exactly

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1 what you're after.

2 Q. (BY MR. WADE) Is there any portion of the
3 June 2001 response labeled as Exhibit 4 that in your
4 opinion is an expression by the patentee that the
5 invention is only sealed and not unsealed?

6 **A. Well, so I'll point you to paragraph 104 of my**
7 **declaration, and I know that this is referring to**
8 **Patent '138's prosecution history rather than the**
9 **'829 prosecution history, but I think that we can look**
10 **at -- you know, these patents are parallel to each other**
11 **and, in fact, the '138 states that it's a continuation of**
12 **the '839 [sic], and the quoted text there, I believe,**
13 **defines the difference between these two in terms of**
14 **the -- in the prosecution history, and I believe there are**
15 **other phrases in -- in the '829 prosecution history that**
16 **parallel this.**

17 MR. WADE: Object as nonresponsive.

18 Q. (BY MR. WADE) I will limit my question to
19 Exhibit 4, the June 2001 response.

20 **A. Okay.**

21 Q. In your opinion, are there any portions of that
22 document to which the patentee has disavowed an unsealed
23 hydraulic link?

24 MR. ABDELNOUR: I'm going to object. And
25 I think if your question is going to be asking about the

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1 entirety of this document, you've got to provide him with
2 the whole document, not just put a portion of it up on the
3 screen.

4 MR. WADE: You are free to -- we'll scroll
5 up and down for you, Dr. Quinlan.

6 **A. So you'll need to scroll down the other**
7 **direction. Stop there for a second. Oh, back up. Scroll**
8 **down again. All right. I think there are two places that**
9 **I'd like to point out.**

10 **The first -- scroll back up. If we look at**
11 **the first -- the first sentence in the first -- in the**
12 **last paragraph on that page, they're discussing the**
13 **O'Neill patent and the dynamic flow that's included in**
14 **contrasting that to theirs. And so I think that's part of**
15 **the indication that this -- that they're discussing that**
16 **theirs must be sealed. It does not have this dynamic flow**
17 **of hydraulic fluid. And that --**

18 Q. And --

19 MR. ABDELNOUR: Let him finish his answer.

20 **A. And I believe basically this whole paragraph --**
21 **so if you go down, I would go from there all the way down,**
22 **continuing to the next page.**

23 **In this portion of the document here, we**
24 **begin to talk about that to transmit the forces through**
25 **the fluid so that it acts substantially as a solid. Well,**

Page 23

1 again, that seems like -- just like claim 1(e) of the
2 **actual patent, must require this to be sealed. So, I**
3 **mean, I think this whole paragraph goes towards that**
4 **point.**

5 Q. (BY MR. WADE) Any other passages in Exhibit 4
6 that you rely on for your opinion?

7 **A. I relied on the entire prosecution history.**

8 Q. I understand that. Are there any other
9 particular passages in 4 that you believe speak to a
10 limitation that it must be a sealed hydraulic link?

11 **A. Again, I don't think I can say that I didn't rely**
12 **on the rest of the document. I relied on the entire**
13 **document.**

14 MR. ABDELNOUR: Sorry, Counsel. I'm
15 struggling here because I'm not sure I know -- and I don't
16 know if the witness knows -- what the entirety of
17 Exhibit 4 is. And typically I think -- in a dep I ke
18 this, remotely, I think you probably need to give him the
19 PDF. You can provide --

20 Sara, am I right, he can provide the PDF,
21 and we can have the whole document so that the witness can
22 scroll through it? And so that I have a copy as well.

23 REPORTER: Yes.

24 MR. WADE: That's fair. Why don't we take a
25 short break and I'll send that to you.

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1 MR. ABDELNOUR: Okay. I appreciate that.
2 (Recess taken from 10:44 a.m. to 10:58 a.m.)

3 REPORTER: Back on the record at 10:58 a.m.

4 Q. (BY MR. WADE) Dr. Quinlan, we provided you with
5 a PDF of the exhibits including Exhibit 4. I believe you
6 had a moment to at least peruse Exhibit 4.

7 In your opinion, are there any particular
8 passages in Exhibit 4, other than what you've already
9 identified, that in your view are disavowed by the
10 patentee of an unsealed hydraulic link?

11 MR. ABDELNOUR: Objection to form.

12 **A. As we discussed on page -- page 4 and page 5, the**
13 **paragraph there, I believe, requires the device to be**
14 **sealed for it to perform its job.**

15 Q. (BY MR. WADE) And other than the paragraph that
16 begins at the end of page 4 and spills over to page 5, is
17 there any other text that you would cite to for that
18 opinion?

19 MR. ABDELNOUR: Objection to form.

20 **A. So clearly the updated claims would also, you**
21 **know, apply in this way. We have the new updated**
22 **claim 1(e) in here.**

23 Q. (BY MR. WADE) And where is that?

24 **A. On page 2.**

25 Q. Okay. Any other passages in Exhibit 4?

Westport Fuel Systems Canada Inc.

EX 2002

Robert Bosch LLC et al. v. Westport Fuel Systems
Canada Inc.

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Page 25 1 A. Off the top of my head this is what I'm seeing 2 right now, but, again, I think it's the entire document 3 and the entire history that go together to show this. 4 Q. And when you say "the entire history," are you 5 referring to portions of this prosecution history other 6 than what you specifically cited in paragraphs 103, 104, 7 and 105 of your report? 8 A. I believe that the entirety of both patents, 9 including the claims specifications, the embodiment, the 10 figures, and both of their prosecution history, they are 11 consistent on this. 12 Q. But am I correct that the only portions of the 13 prosecution history that you specifically cited in the 14 report are the portions in paragraphs 103, 104, and 105 of 15 your report? 16 MR. ABDELNOUR: Objection to form. 17 A. In addition to that, paragraph 108 relies on the 18 prosecution history of the '138 Patent. In paragraph 109, 19 we have -- let's see, we again mention O'Neill and the 20 disavowal of that -- or not the disavowal, the suggestion 21 that the passive hydraulic link is a new device. 22 Q. (BY MR. WADE) Any other specific references in 23 the patent prosecution history? 24 A. In Section V (A). 25 Q. Section V (A) of your report.	Page 27 1 Q. It appears in the last paragraph on page 9, 2 beginning "A major difference between." Do you see that? 3 A. Yes, I see this. 4 Q. And we go to the next sentence in that same 5 paragraph -- and it's referred in paragraph 105 of your 6 report -- and that sentence reads, "In passive hydraulic 7 systems like the applicant's, the hydraulic oil is 8 substantially contained." 9 What does "substantially contained" mean? 10 A. In context of this patent, I think that a person 11 in the ordinary skill of the art, it's my opinion that 12 they would assume that means sealed. 13 Q. If something is substantially contained, would 14 you agree that's not a hundred percent contained? 15 A. Again, in context of this device, that's how a 16 person would read it, that it has to be sealed to do its 17 job. 18 Q. And is there no way to read "substantially" to 19 mean most but not all? 20 MR. ABDELNOUR: Objection, form. 21 A. I mean, if we just look at the word and pull it 22 out of context, surely it can mean whatever you like. I 23 mean, it can mean -- it can mean completely sealed or it 24 can mean partially sealed, sure. But that's out of the 25 context of the patent.
Page 26 1 A. Yes. That's what you are speaking of, the 2 passive hydraulic link claim construction? 3 Q. Yes. 4 A. I mean, we talked about paragraphs 103, 104, 105, 5 106, 108, 109, right? They all refer to the prosecution 6 history of these two patents. 7 Q. Right. And you cited passages in those 8 paragraphs that you are particularly relying upon, right? 9 A. They're examples of what I relied on. 10 (Exhibit 5 marked.) 11 Q. (BY MR. WADE) One of the -- one of the other 12 pieces of prosecution history that you cite in your report 13 is a February 21, 2003, amendments we provided, we marked 14 it as Exhibit 5 to your deposition. 15 Do you have that available to you? 16 A. Let me pull it up. All right. I see the 17 document. Let me orient myself. 18 Q. Let me know when you are ready to proceed, 19 please. 20 A. All right. 21 Q. You ready to proceed? 22 A. I am. 23 Q. In paragraph 104 of your report you direct us to 24 a passage found on page 9 of Exhibit 5. Do you see that? 25 A. Yes.	Page 28 1 Q. (BY MR. WADE) With regard to the claims 2 construction for passive hydraulic link, you've also added 3 a limitation that "but not employed to generate an 4 actuating force." 5 And does that text come from the patent 6 specifications description of the preferred embodiment? 7 MR. ABDELNOUR: Objection to form. 8 A. So, for example, this wording comes from -- from 9 looking at the patent as a whole and trying to apply the 10 ordinary meaning of the words here. And looking at, for 11 example, the quoted portion of paragraph 102, we see 12 that -- that "the hydraulic link assembly merely transmits 13 the actuating force," and continues on from there. 14 It's showing that this device does its 15 job -- that's one of its jobs, is to transmit the opening 16 and closing force to this needle valve. 17 Q. (BY MR. WADE) Looking at the -- just the plain 18 language in claim 1 of the '829 Patent, is there any text 19 in the claim language itself that leads to a requirement 20 "but not employed to generate an actuating force"? 21 MR. ABDELNOUR: Objection to form. 22 A. So in claim 1(e), right, it discusses the opening 23 and closing forces being transmitted with this passive 24 hydraulic link assembly. And so while those words are not 25 explicitly meaning in the claim language, when taken as a

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1 whole, right, the specification informs the claims, a
2 person in ordinary skill in the art, when reading this
3 patent, would see that this is an ordinary thing.
 4 Q. (BY MR. WADE) What in your view -- how would a
 5 person of ordinary skill in the art define "not employed
 6 to generate an actuating force"? What does that mean?
 7 **A. So what we're speaking about here is that the**
8 force is being generated by an actuator, okay? So in
9 these two patents the actuators are either piezoelectric
10 or magnetostrictive. And that force, we don't want to
11 mechanically transmit that to the needle valve for all of
12 the reasons that are listed in the patent. And so this
13 device that the -- appears to be the key to the patent
14 gives the ability to transmit that across the fluid
15 without changing the forces in that.
 16 Q. Does the phrase "not employed to generate an
 17 actuating force" mean the same thing as not transmitting a
 18 force?
 19 **A. Well, if you are not transmitting a force, you**
20 are not doing anything, so no.
 21 Q. Is there any force being transmitted through the
 22 hydraulic fluid in the '829 Patent?
 23 **A. The opening and closing forces to the injector**
24 are transmitted through the passive hydraulic link when
25 the valve -- when the actuator is actuating.

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1 Q. How does your answer you just gave, the opening
 2 and closing forces of the injector are transmitted through
 3 the passive hydraulic link -- how does that square with
 4 your proposed claim construction?
 5 **A. So the actuating forces are the opening and**
6 closing forces to the valve, right? And rather than
7 generating them, we're transmitting them, right? So it's
8 transmitting the actuating forces, but it's not generating
9 the actuating forces.
 10 Q. Is there anything in the prosecution history for
 11 either the '829 or the '138 Patent that you rely upon for
 12 your opinion that this negative limitation needs to be
 13 added to passive hydraulic link?
 14 MR. ABDELNOUR: Objection to form.
 15 **A. Without this -- the issue with the negative here,**
16 the reason it needs to be included is to eliminate the
17 possibility that an active hydraulic link could be
18 construed under the claim construction.
 19 Q. (BY MR. WADE) And why did you need to limit it
 20 that way?
 21 **A. Well, it is clear from the prosecution history**
22 that if -- without that limitation, the claims were
23 rejected.
 24 Q. All right. Let's turn to another claim you
 25 construed, valve needle.

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1 MR. ABDELNOUR: Counsel, hate to interrupt,
 2 but if you are going to another term, is it a good time
 3 for maybe a five-minute break?
 4 MR. WADE: Sure. Absolutely. Take five
 5 minutes. That's just fine.
 6 REPORTER: Off the record at 11:18 a.m.)
 7 (Recess taken from 11:18 a.m. to 11:24 a.m.)
 8 REPORTER: Back on record at 11:24 a.m.
 9 Q. (BY MR. WADE) Great. Dr. Quinlan, we're back on
 10 the record. I want to turn to the section of your report
 11 regarding a valve needle --
 12 **A. Okay.**
 13 Q. -- and your proposed construction of a valve
 14 needle.
 15 And as I read your proposed claim
 16 construction, is it a correct read that you are defining a
 17 valve needle as a valve itself?
 18 MR. ABDELNOUR: Objection, form.
 19 **A. So whether you define it as a valve or a**
20 component of a valve, we can discuss that, but I think
21 it's inconsequential.
 22 Q. (BY MR. WADE) Well, is a valve needle, as you
 23 construed it, a valve or a component of a valve?
 24 **A. Again, I think that the more important part is**
25 that we're referring to the same structure whether we're

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1 referring to a component of the valve or the valve itself.
 2 Q. Well --
 3 MR. WADE: Objection, nonresponsive.
 4 Q. (BY MR. WADE) Is the valve needle, as you are
 5 construing it, the complete valve or is it a component of
 6 a valve?
 7 MR. ABDELNOUR: Objection to form, asked and
 8 answered.
 9 **A. Again, I think in my opinion these things are**
10 closely related, they are relating to the same structure,
11 and whether it said valve component consisting of or a
12 valve consisting of, you know, it's a matter of -- it's
13 still referring to the same structure. If it happened to
14 say "valve component consisting of," you know, that isn't
15 necessarily -- that isn't something that would change
16 anything substantially, in my opinion.
 17 Q. (BY MR. WADE) So could your claim construction
 18 be amended to read valve component consisting of a slender
 19 elongated pointed rod that directly seals interior chamber
 20 from combustion chamber?
 21 **A. Again, I think that basically means the same**
22 thing, in terms of the structure, the actual components
23 itself.
 24 Q. So the addition of components to your
 25 construction, in your opinion, wouldn't change the meaning

1 of the claim? 2 A. Again, it's referring to the same structure as a 3 whole. And so whether it said one or the other I don't 4 think makes much difference in the overall understanding 5 of what a valve needle is. 6 Q. Does your proposed claim construction of valve 7 needle incorporate the opening that is sealed? 8 A. What opening -- 9 Q. The valve opening that is sealed. Let me ask 10 it -- would you agree that a basic, very simplistic valve 11 has an opening through which something passes and an 12 object or an apparatus that seals that opening or unseals 13 it? You can control the opening or closing, correct? 14 A. I mean, a valve is used to open and close a 15 passage, yes. I think, you know, we're talking about in a 16 very general sense. 17 Q. And in a very general sense you have an opening 18 and then something that seals the opening, correct? 19 A. In a general valve, yes. 20 Q. Does your definition of valve needle that you 21 proposed include the opening, or is it merely the device 22 that closes the opening? 23 A. Well, a -- the component that moves and the 24 component that's stationary work in cooperation to seal. 25 Q. So as I think you just recited, there would be	Page 33 1 needle and then needle within a valve. 2 Q. The last part of your answer you said and those 3 were one and the same thing, a valve needle and then 4 needle within the valve? 5 A. Yeah, I think that's how it's used in common 6 usage. 7 Q. Does your proposed construction of valve needle 8 for purposes of this case differ from the definition that 9 a person of ordinary skill in the art would have that you 10 just provided us? 11 A. No. I mean, again, I think that maybe it should 12 be referring more towards a component than the entire 13 valve itself, but it is a slender elongated pointed rod 14 that directly seals, in this case, the interior chamber 15 from the combustion chamber. 16 And why this is different than maybe just a 17 random needle in a random generic needle valve is that 18 this isn't for that. This is for a fuel injector, and I 19 think someone that was working in the fuel injector 20 industry would know the difference and see that exactly as 21 this. 22 Q. How do you define slender? 23 MR. ABDELNOUR: Objection to form. 24 Q. (BY MR. WADE) Let me ask, how do you define 25 slender as you proposed its use in your claim construction Page 35
Page 34 1 two components that have to work together to seal, 2 correct? 3 A. Yeah. I mean, the -- the component has -- you 4 know, they each have to have a -- I mean, how would one 5 component seal a fluid, right? Unless it's a bag. 6 Q. Unless it's a what? I'm sorry. 7 A. Unless it's a bag, right? I mean, like, how can 8 one component seal something unless it's wrapped around 9 it. I'm not sure I understand your question. 10 Q. My question was, so you just recited there are at 11 least two components to a valve that work together to form 12 a seal, correct? 13 A. I would say in a general valve there's two 14 components that work together to do the seal. 15 Q. Before you read the patents in this case, did you 16 have an understanding as a person of ordinary skill in the 17 art of what a valve needle was? 18 A. Sure. 19 Q. And what -- what is your definition of a valve 20 needle, without regard to the patents, that would be known 21 to a person of ordinary skill in the art? 22 A. I think that a person of ordinary skill in the 23 art would see the term "valve needle" in context of a 24 valve and assume that this was the needle within a needle 25 valve and that those were one and the same thing, a valve	Page 36 1 of the phrase "valve needle"? 2 A. So I think that it has an ordinary meaning that 3 everyone would understand. Meaning if, let's say, a, you 4 know, rod-like body, for it to be slender, it would have 5 to have a diameter that was much less than its length. 6 Q. And where in the patents are you finding support 7 for your opinion that it must be slender? 8 A. Well, in claim 1 they refer to it as a valve 9 needle, and I think a person of the ordinary skill in the 10 art would understand a shape of a needle is slender. 11 Q. Is that a reference to the width of the rod? 12 MR. ABDELNOUR: Objection to form. 13 A. Its width and length together. 14 Q. (BY MR. WADE) Is there a formula that you can 15 use to know if a needle is slender or not slender? 16 MR. ABDELNOUR: Objection to form. 17 A. Again, I believe that this is a commonly 18 understood word, and taking it in its plain meaning would 19 mean that it's much longer than it is across. 20 Q. (BY MR. WADE) Other than that ratio, is there 21 any other test you would employ to know if something is 22 slender or not slender? 23 MR. ABDELNOUR: Objection, form, and asked 24 and answered. 25 A. I'm sure that there are other tests that we could

Page 37 1 do to come up with whether it's slender or not. But for 2 the most part, it would be relying on a person of ordinary 3 skill in the art to look at it and say it's slender. I 4 think they would know what slender is. 5 Q. (BY MR. WADE) Is it a matter of opinion as to 6 when something is not slender? 7 A. Again, I think this has a plain and ordinary 8 meaning to this word "slender," and you would know what it 9 was. 10 Q. Can you give me the plain and ordinary meaning of 11 slender as you believe it's held by a person of ordinary 12 skill in the art? 13 MR. ABDELNOUR: Asked and answered. 14 Objection to form. 15 A. I believe it would be looking at that the device 16 or the rod, if we're talking about a rod specifically, 17 that it is must longer than it is wide. 18 Q. (BY MR. WADE) Are there any specifics on how 19 much longer it must be than its width to be slender? 20 MR. ABDELNOUR: Form, asked and answered. 21 A. Again, I think that you would know that it was 22 much longer than it is wide. 23 Q. (BY MR. WADE) How would I know that? How would 24 a person of ordinary skill in the art know that? 25 A. From the plain and ordinary meaning of slender.	Page 39 1 pointed in each one of the figures. Furthermore, the 2 patent describes that there must be a differential angle 3 at the sealing surface of the needle. 4 And so with an inward opening poppet, you 5 have to have a line contact, essentially, between the 6 needle and the nozzle seats to seal the fuel from going 7 into the combustion chamber, and this is how it's done is 8 by having this differential angle. And so you do that by 9 grinding the needle into a pointed shape at the front of 10 the needle. 11 Q. Are you claiming that any differential angle at 12 the end of the needle constitutes pointed? 13 A. You could have a differential angle that was, you 14 know, pointed the other direction, but there would be no 15 way to make that device. And so a person of the ordinary 16 skill in the art would know that it had to be pointed 17 rather than inversely pointed, right, pointing into the 18 middle of the needle. 19 Q. Let's look at Figure 1 of the '829 Patent. We're 20 using the version from your report that's colored. You 21 recognize that the structure 114 is the valve needle? 22 MR. ABDELNOUR: What page are you on? 23 MR. WADE: Actually, this is Exhibit 7. 24 Sorry. 25 (Exhibit 7 marked.)
Page 38 1 Q. You've added the word "elongated" to your 2 proposed claim construction of valve needle. How do you 3 define elongated? 4 A. So opposed to being squat, you know, it would be 5 longer than that. 6 Q. You said longer than that. What is that? Longer 7 than squat? 8 A. If a volume was wide for its height, that 9 wouldn't be elongated, right? So it's when, again, the 10 height or length of what we're talking about is more than 11 its transverse -- significantly more than its transverse 12 dimension. 13 Q. And what part of the patent do you believe 14 requires that the valve needle be elongated? 15 MR. ABDELNOUR: Objection to form. 16 A. I believe -- let's start off in claim 1 -- it 17 refers to it as a valve needle. A needle is elongated in 18 shape. 19 Q. (BY MR. WADE) You've added pointed, or you've 20 included pointed in your definition of valve needle. Is 21 there any text in the patents that you believe suggests 22 that the valve needle is pointed, or must be pointed? 23 A. I'd like to specifically point to paragraph 131 24 in my report. To begin with, the figures themselves show 25 that the needle inside of the injector itself is being	Page 40 1 Q. (BY MR. WADE) In Exhibit 7 of your deposition, 2 it's a portion -- it's from your report. Do you see it on 3 the screen, Dr. Quinlan? 4 A. Yeah. I'm just pulling it up on my screen to 5 make sure it's the same and everything. All right. 6 MR. ABDELNOUR: Are you representing that 7 this is taken out of his report? 8 MR. WADE: It's colored by him in his 9 report, yes. 10 MR. ABDELNOUR: And are you representing 11 that there were changes, or should he be looking at 12 whether it was modified? 13 MR. WADE: There were no changes. 14 WITNESS: That's not true. The figure is 15 not the figure from my report. It's maybe a similar 16 figure from a different report, but this is not the one 17 from page 9 of my report. Look at the caption, right? 18 Q. (BY MR. WADE) You're saying at the very bottom, 19 the '829 Patent Figure 1 annotated? 20 A. Yeah, it has been annotated. 21 Q. Well, we haven't changed the diagram. That's 22 just the reference. Instead of having it there that's in 23 your report, we've added the '829 Patent. 24 A. Okay. I'm just saying it's not identical. 25 Q. You recognize that the diagram of the valve and

1 the referring numbers are identical to the diagram that's 2 in your report on page 9? 3 A. It appears to be the same. 4 Q. Okay. You recognize that the structure labeled 5 114 is the needle, the valve needle? 6 A. Yes. 7 Q. Does the end of that valve needle appear to be 8 pointed to you? 9 A. Yes. It is not flat. If you zoom in on that, it 10 surely has a conical angle on it to provide the sealing 11 surface. Just because it's a wider angle doesn't mean 12 it's not still pointed. 13 Q. Are you familiar with a poppet-type valve tip? 14 MR. ABDELNOUR: Objection, foundation. 15 A. It's basically the same thing. 16 Q. (BY MR. WADE) Let's look at the '829 Patent 17 column 9, line 7 through 10. 18 A. Column 9, line 7 through 10? 19 Q. Correct. It reads, "In an alternative 20 arrangement (not shown) a poppet-type valve tip may be 21 used so that downward movement of the valve needle causes 22 it to open." 23 Do you see that? 24 A. I do see that. 25 Q. Do you know what a poppet-type valve is?	Page 41 1 A. Again, this is referring to something else. This 2 is foreshadowing the parallel patent that was prepared at 3 the same time for Westport that is for an outwardly 4 opening pintle injector. 5 MR. WADE: Objection, nonresponsive. 6 Q. (BY MR. WADE) Does the poppet-type valve tip, as 7 referenced in column 9 of the '829 Patent, satisfy or not 8 satisfy your proposed claim construction for valve needle? 9 MR. ABDELNOUR: Objection to form. 10 A. I think that someone that was reading this 11 patent, a person of the ordinary skill in the art, would 12 recognize that they are referring to a different device 13 here that is an outwardly opening poppet injector and is 14 different than what is proposed in the claims. 15 Q. (BY MR. WADE) In your opinion, does the sentence 16 in column 9, lines 7 through 10, does that not refer to a 17 valve needle, or are you saying it refers to some other 18 component or possible component? 19 MR. ABDELNOUR: Objection to form. 20 Q. (BY MR. WADE) Does column 9, line 7 through 10 21 refer to a valve needle? 22 A. It is my opinion that -- that this refers to 23 something other than a needle because the -- we're not 24 talking about a needle valve anymore. We're talking about 25 opening -- an outwardly opening pintle valve.
Page 42 1 A. Well, this is not just a poppet-type valve. This 2 is an outwardly opening poppet-type valve or pintle valve, 3 and this is a different arrangement than that's shown in 4 the diagram. 5 Q. Right. What is the shape of the tip of a top 6 poppet-type valve? 7 A. An outwardly opening poppet valve or a poppet 8 valve? 9 Q. A poppet-type valve that is referred in column 9, 10 line 7 through 10 of the patent? 11 A. Again, this is referring to an outwardly opening 12 poppet valve which has a -- the seat itself has to be on 13 the far end of the nozzle seat. And so the diameter 14 actually gets larger as you go towards the tip of the -- 15 of the valve component numbers. 16 Q. Is a poppet-type valve, as referred to in 17 column 9, line 7 through 10 of the '829 Patent, does it 18 have a pointed end, as you proposed in your construction 19 of valve needle? 20 A. Again, this is referring to an outwardly opening 21 poppet valve which is not pointed, and this is exactly 22 what's referred to in the '138 Patent. 23 Q. So would a poppet-type valve tip, as referenced 24 in the patent, meet or not meet your proposed claim 25 construction of valve needle?	Page 43 1 Q. I appreciate you said we're not talking about a 2 needle. Are we talking about a valve needle? 3 A. The -- this sentence specifically is referring to 4 an outwardly opening pintle-type-style injector nozzle. 5 Whereas, the rest of the patent, including the claims, 6 only are with regard to a needle valve-style injector. 7 And so this isn't applicable to the coverage of, say, 8 claim 1 that's referring to a needle valve. 9 Q. So, in your opinion, would a poppet-type valve 10 tip not meet the requirements of the claim of the 11 '829 Patent? 12 MR. ABDELNOUR: Objection to form, asked and 13 answered a few times now. 14 A. An outwardly opening pintle injector nozzle would 15 not meet the claim requirements here. 16 Q. (BY MR. WADE) Would an inwardly opening 17 poppet-type valve meet the claim requirements? 18 MR. ABDELNOUR: Objection to form. 19 A. An inwardly opening pintle valve is just a needle 20 valve. They're the same thing. 21 Q. (BY MR. WADE) In your report you cited to 22 Webster's Collegiate Dictionary and the American Heritage 23 Dictionary for definitions of needle, needle valve, valve. 24 Why have you cited to these references? 25 A. I believe that a needle valve and a needle Page 44

Page 45 1 contained within it have an ordinary meaning to people 2 beyond even someone skilled in the art. It's just a 3 general term, so I used an external reference that would 4 be generally acceptable for that. 5 Q. Are you familiar with engineering dictionaries or 6 dictionaries that -- for unique engineering terms? 7 A. I know that there are technical dictionaries, 8 yes. 9 Q. Did you consult any engineering dictionaries 10 during your work on this case? 11 A. In my opinion, that was not needed. 12 Q. So the answer is no? 13 A. I did not consult any technical dictionaries 14 because I thought it was not needed. 15 Q. Do you recognize the Oxford Dictionary of 16 Mechanical Engineering as a resource that would be known 17 to a person of ordinary skill in the art? 18 MR. ABDELNOUR: Objection, foundation. 19 A. I specifically don't use it, but -- I haven't 20 used it, but I'm not saying it isn't a reference that 21 would be used in some cases. I'm just -- 22 Q. (BY MR. WADE) Is that a reference that would be 23 appropriate for someone who is a person of ordinary skill 24 in the art to consult if they wanted to find a definition 25 for a term?	Page 47 1 correct? 2 A. I say that the valve consists of a slender 3 elongated pointed rod that directly seals the interior 4 chamber from the combustion chamber. 5 Q. Is it your opinion that a person of ordinary 6 skill in the art would read valve needle in this patent 7 and glean that construction? 8 A. In the context of a -- a needle valve used in a 9 fuel injector, I believe that a person of the ordinary 10 skill in the art would know that that needle valve was 11 directly sealing the interior of the chamber from the 12 combustion chamber. 13 Q. Would the definition that you just provided be 14 true if applied to other fuel injectors? 15 MR. ABDELNOUR: Objection, form. 16 Q. (BY MR. WADE) Let me put it this way: Is your 17 construction of needle valve -- do you -- sorry. 18 Is your construction of needle valve one 19 that you believe is the definition held by a person of 20 ordinary skill in the art? 21 A. I believe that a person of the ordinary skill in 22 the art, in the context of these patents, would read this 23 as that it requires that the needle valve directly seal 24 the interior chamber from the combustion chamber. 25 Q. In what portion of the patent do you believe
Page 46 1 MR. ABDELNOUR: Objection, foundation. 2 A. Again, if you thought that you needed it, fine. 3 But in this case I think that this term has a plain and 4 ordinary meaning within the regular English language, and 5 so there was no need for that. 6 Q. (BY MR. WADE) Are there any engineering 7 dictionaries that you recognize as authorities that you 8 may consult in your work? 9 A. I typically don't need those references in my 10 day-to-day work. 11 Q. If you did need to consult an engineering 12 dictionary, is there any one or two that you might consult 13 or look to consult? 14 A. No. I would have to do research on what I would 15 want to use for that. I would go to the library and 16 figure it out. 17 Q. When you were getting your degree in engineering, 18 which is contemporaneous with the prosecution of the 19 '829 Patent, did you have an engineering dictionary that 20 you referred to while you were in school? 21 MR. ABDELNOUR: Objection, form, foundation. 22 A. No, I did not. 23 Q. (BY MR. WADE) With regard to the phrase "valve 24 needle," you've also included a requirement that it 25 directly seals interior chamber from combustion chamber,	Page 48 1 requires that limitation that it directly seal the 2 interior chamber from the combustion chamber? 3 A. Again, I believe it's the entire patent and the 4 context that that patent is within. 5 Q. What specific language in the patent? Can you 6 cite me to the portion of the patent that you are relying 7 upon? 8 A. Again, I am relying on the entire patent, but I 9 can give you specific examples. 10 Q. Thank you. 11 A. Let's refer to paragraph 116 of my report and the 12 text that's quoted within that. "The valve needle 114 is 13 disposed within the interior of the valve body and 14 contacts the valve seat 112 to close the injection valve 15 100, preventing fuel from passing beyond valve seat 112 to 16 the nozzle orifices 110." Okay? 17 And then so we're showing here that the 18 interior of the injector is sealed from the nozzle 19 orifices by the needle. And then we can further -- you 20 know, we know that the nozzle orifices are connected to 21 the combustion chamber. That's what the nozzle orifices 22 do, right? They provide the connection between the 23 interior of the nozzle, which we call the sac and the 24 combustion chamber. 25 Q. What specific language are you relying upon to

1 find the limitation that it must directly seal, in 2 particular, that word "directly"? 3 MR. ABDELNOUR: Objection, form. 4 A. Again, I think basically we can look at the same 5 quotation. We're seeing that we're connecting two pieces, 6 the interior of the chamber and the combustion chamber, 7 and the thing that goes between them that opens and shuts 8 them is the needle valve. And I think that's how a person 9 of the ordinary skill in the art would see not only this 10 quotation but the entirety of the patent, the claims, the 11 specifications, the embodiments, the figures, the 12 prosecution history -- it's all very consistent that this 13 is how the arrangement must go. 14 Q. (BY MR. WADE) Do you find any support for that 15 opinion in the text of claim 1 of the patent? 16 A. If we look at -- as an example of what helps me 17 on -- with this, from the claims, if we look at 18 claim 1(a), the last sentence in there, "The nozzle" -- 19 the last phrase in there, "The nozzle comprising a nozzle 20 orifice providing a fuel passage from said interior 21 chamber to said combustion chamber." 22 So -- and so we've got the overall picture, 23 is fuel comes in the inlet, it's connected to the interior 24 of the chamber, and that's the phrase right before that, 25 and then that is connected with the nozzle orifices	1 answered. 2 A. I've already pointed to a specific example, 3 claim 1(a), where a person of ordinary skill of the art 4 would see this and see that that's how the injector would 5 be arranged. 6 Q. (BY MR. WADE) Any other portions in the claim 7 that you believe would inform someone about that 8 limitation? In the claim itself, not the specification. 9 A. I'm looking at the claim here. Hold on. We look 10 at claim 1(b), right, we're separating a -- needle is 11 separating the interior chamber from the nozzle orifices. 12 Again, this is pointing to this -- exactly this 13 arrangement. 14 Q. Does 1(b) include any language that says it must 15 be direct? 16 MR. ABDELNOUR: Objection, form. 17 A. Again, I think a person in the ordinary skill of 18 the art reading claim 1(b) would understand that the 19 interior chamber and the combustion chamber were directly 20 connected when the needle was unsealed. 21 Q. (BY MR. WADE) Any portions of claim 1 that you 22 believe require direct seal? 23 A. I believe that, in my opinion, someone with the 24 ordinary skill of the art reading claim 1(e), when we're 25 talking about the opening and closing forces that the
1 through the nozzle where the needle resides, right, the 2 needle nozzle arrangement. 3 And so the thing that's separating the 4 interior of the chamber from the nozzle orifices, which is 5 connected to the -- you know, it's just a whole. You 6 know, it's part of the passage from the interior chamber 7 to the combustion chamber. The thing that separates those 8 two things is the needle nozzle seal. 9 Q. And are you reading that language in the claim, 10 the requirement that it be directly sealed? 11 A. Well, again, I think that claim 1(a) would be 12 read that that's how this must be. And I think a person 13 of the ordinary skill of the art would take that, take all 14 the other claims, take the specification, the figures, the 15 embodiments that all show this exact arrangement and a 16 typical arrangement for a fuel injector and know that this 17 is exactly what they're speaking of. It's a direct 18 connection between the interior of the chamber and the 19 combustion chamber and sealed with this needle valve. 20 Q. Dr. Quinlan, I appreciate you incorporated the 21 patent as a whole in your answer and gone beyond the 22 claims and specification. Reading just the claim, is 23 there language in the claim that you believe requires a 24 direct seal between injector and combustion chamber? 25 MR. ABDELNOUR: Objection to form, asked and	1 passive hydraulic link is transmitted -- that are 2 transmitted through that device, they would know that they 3 are referring to the needle that is separating the 4 interior of the chamber from the combustion chamber. 5 Q. Is it your opinion the person of ordinary skill 6 in the art would read that as requiring a direct seal? 7 A. I think that my opinion is that they would 8 understand that as that those things were directly 9 connected. 10 Q. Direct -- 11 MR. WADE: Sara, the realtime is not 12 updating. 13 (Discussion off the record.) 14 Q. (BY MR. WADE) You said in your answer that a 15 person of ordinary skill in the art would know that they 16 are referring to the needle that is separating the 17 interior of the chamber from the combustion chamber. 18 And does the person of the ordinary art also 19 know it is a direct seal, reading the claim language that 20 we just looked at? 21 MR. ABDELNOUR: Objection to form. 22 A. I don't think that there is such thing as an 23 indirect seal. So let me provide you an example here. If 24 I'm trying to connect passage A and passage B, right, if 25 they were just connected straight, that would just all be

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1 one passage. If I put a valve in the middle, that's
 2 what's connecting those two things. I would surely say
 3 that those two things are directly connected on either
 4 side of the seal of that valve. That's what's defining
 5 one passage versus the other.
 6 If I all of a sudden put a second valve in
 7 some place so that I have A, B and B, so C is in the
 8 middle -- poor planning on my part -- then if there is a
 9 valve between A and C and there's a valve between C and D,
 10 or C and B, those two valves separate points A and D. So
 11 I would say they are not necessarily directly connected to
 12 each other, because there's this passage, there's this
 13 passage, and there's this passage. They're not connected
 14 with each other.
 15 But when I put that valve seal that's in the
 16 middle, this whole thing is connected from, in this
 17 example, the fuel inlet port to the valve seat, and then
 18 on the other side of the valve it is from the valve seat
 19 to the interior of the combustion chamber. I would say
 20 those two passages are directly connected on either side
 21 of this needle seal.
 22 Q. (BY MR. WADE) So the example you just gave where
 23 you have several valves in between?
 24 A. Right.
 25 Q. If you had that arrangement -- your A, B, C, D

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1 valve arrangement you just described -- would that be an
 2 arrangement where they're not directly sealed from one
 3 another, the passages on either end?
 4 MR. ABDELNOUR: Objection to form.
 5 A. Again, I don't know exactly what not directly
 6 sealed or indirectly sealed, whatever that -- what you
 7 exactly mean there. What is clear is that, you know, if
 8 there were two valves in this progression from, say, the
 9 inlet of the valves to the combustion chamber, it would be
 10 hard to say that this first part was directly connected
 11 with the second part because there are two sealing
 12 surfaces in between that.
 13 And you said if you open either one of the
 14 sealing surfaces, you don't get flow through that passage,
 15 right, it requires you to have both of them opened at the
 16 same time. So I wouldn't say in that case that the first
 17 passage and the third passage were directly connected.
 18 That's not the case in this injector, right.
 19 We have that the first passage, say, from the inlet of the
 20 injector through the interior chamber passage down to the
 21 nozzle to the seat, that's a passage. And then there's a
 22 passage that goes from the seat through the sac, through
 23 the orifice into the combustion chamber. And there is one
 24 thing that sits in between there. The needle of the
 25 needle nozzle combination, the seal that's created between

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1 the needle and the nozzle.
 2 Q. (BY MR. WADE) In your view is it possible to
 3 have more than one valve, like you just mentioned the
 4 two-valve configuration, and satisfy the claims of the
 5 patent?
 6 MR. ABDELNOUR: Objection to form.
 7 A. I hadn't considered that because I can't imagine
 8 a situation where there would be two valves in line like
 9 that, but I don't believe it would change my opinion.
 10 Q. (BY MR. WADE) And what would your opinion be?
 11 MR. ABDELNOUR: Objection, form.
 12 A. That the -- let's go back all the way to that
 13 we're talking about the valve needle here and that it's a
 14 long slender rod that's pointed and directly seals the
 15 interior chamber from the combustion chamber. That's my
 16 opinion.
 17 Q. (BY MR. WADE) All right. I want to turn to the
 18 construction of valve member.
 19 MR. WADE: Dennis, if you want another
 20 break, I won't object to one, but I can keep going.
 21 MR. ABDELNOUR: Sure. Let's take five. And
 22 then -- yeah, let's take five.
 23 MR. WADE: Okay.
 24 REPORTER: Off the record at 12:13 p.m.
 25 (Recess taken from 12:13 p.m. to 12:21 p.m.)

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1 REPORTER: Back on the record at 12:21 p.m.
 2 Q. (BY MR. WADE) Great. Dr. Quinlan, I want to
 3 turn to your construction of the term "valve member." And
 4 is it correct that valve member is a term that's unique to
 5 the '138 Patent? You don't find that term in the other
 6 patent, correct?
 7 MR. ABDELNOUR: Objection, form.
 8 A. Off the top of my head, I'm not remembering that
 9 being in the '829 Patent, but if you would like me to
 10 check, I can.
 11 Q. (BY MR. WADE) That's okay. So you've defined --
 12 you've offered a proposed construction of the term "valve
 13 member" that it's a member that directly seals interior
 14 chamber from combustion chamber.
 15 Is there any text in claim 1, in just the
 16 claim of the '138 Patent, that requires a direct seal
 17 between the interior chamber and the combustion chamber?
 18 A. All right. I would like to again point you to
 19 claim 1(a) and the last portion of that about the "for
 20 cooperating with a valve member to seal the interior
 21 chamber from said combustion chamber when the injector
 22 valve is closed."
 23 So a person of the ordinary skill in the art
 24 would read this as that there is a member. So a piece
 25 that's moving up and down, that's cooperating with the

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1 needle, the -- excuse me -- the nozzle seat, and it's
2 sealing between the interior chamber, okay, so there's a
3 passage that has fuel coming down from the fuel inlet to
4 the combustion chamber, okay, and that's going through
5 this passage that includes the sac and the nozzle orifices
6 into the combustion chamber.

7 So just as our discussion for the needle
8 discussion sealing, this is the valve that's between these
9 two passages, and so I would say they're directly
10 connected.

11 Q. Is there any particular word or phrase in claim 1
12 of the '138 Patent that you believe imposes the
13 requirement it be direct?

14 MR. ABDELNOUR: Objection to form.

15 A. Again, I think a person of the ordinary skill in
16 the art reading claim 1(a) would know that those two
17 passages are directly connected and separated by the
18 member nozzle seal.

19 Q. (BY MR. WADE) In your construction of valve
20 needle you included the description "slender, elongated,
21 and pointed." Is there a reason you haven't included
22 those words in your proposed claim construction of valve
23 member?

24 A. Well, so this patent is talking about a valve, an
25 injection valve, or more specifically I would say the

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1 entire injector, where the injection valve opens towards
2 the combustion chamber.

3 Q. Okay.

4 A. So the seal has to be above, if you will, the
5 sealing member part of it. So the sealing member has to
6 actually be a different shape than required for a needle
7 valve. And so that's why it doesn't include that
8 construction.

9 Q. What shape does it need to be?

10 A. So --

11 MR. ABDELNOUR: Objection to form.

12 A. So, again, I wouldn't say that the key to this
13 interpretation here of this term is not necessarily the
14 overall shape of it, its function in terms of its location
15 in the injector and its function within the injector.

16 (Exh bit 6 marked.)

17 Q. (BY MR. WADE) Let's look at Figure 1 for both
18 the '138 Patent and Figure 1 from the '829 Patent. I
19 think we've marked both of them as exhibits.

20 So we have Exh bit 6, which I believe is the
21 depiction of the '829 Patent, and we have Exhibit 8 is the
22 colorized version of the Figure 1 and 2 from the '138
23 Patent.

24 Do you see that?

25 (Exh bit 8 marked.)

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1 A. Yeah, I'm looking for Figure 8.

2 Q. (BY MR. WADE) It's not Figure 8; it's
3 Plaintiff's Exhibit 8.

4 A. Exhibit 8, excuse me.

5 MR. ABDELNOUR: Same question with respect
6 to these figures. Are you representing that these are
7 figures from the declaration, and if so, can you point us
8 to where they were taken from?

9 MR. WADE: On page 9 for what you would find
10 on Exhibit 6, and page 16 for what you find on Exhibit 8.

11 A. All right.

12 Q. (BY MR. WADE) And in both of these -- are you
13 with me now, Doctor?

14 A. Yes, I am.

15 Q. Do you recognize that in Figure 1 -- that's
16 Exhibit 6 for the '829 Patent -- that the valve needle is
17 marked 114?

18 A. Yes.

19 Q. If you look at Figure 1 from the '138 Patent,
20 you'll see that the valve member is also marked as 114.

21 A. Yes.

22 Q. And these are depictions of the invention
23 disclosed for each patent, correct?

24 A. They're surely an embodiment of what they're
25 trying to explain, yes.

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1 Q. How is the valve member shown in Figure 1 of the
2 '138 Patent different from the valve needle shown in
3 Figure 1 of the '829 Patent?

4 A. I mean, they're different structural types of
5 valves. So I guess if you could clarify your question.

6 Q. What do you consider the key differences to be
7 between the two?

8 A. Well, one is a needle valve and one is an
9 outwardly opening poppet valve or a pintle valve.

10 Q. So are you claiming that the Figure 1 of the
11 '138 Patent, that the valve member depicted there in green
12 is a poppet valve?

13 A. I mean, you can call it a poppet valve; you can
14 call it a pintle valve. Those are both an outwardly
15 opening pintle valve, not just a general pintle valve.
16 It's outwardly opening.

17 Q. So that difference you just described is with
18 regard to the tip of the valve needle or the valve member,
19 right?

20 A. I mean, it's the function of the -- I mean, it's
21 a totally different valve. It's -- the way the valve
22 operates is different.

23 Q. Does the embodiment that's in Figure 1 of the
24 '138 Patent, is it still a direct seal between the
25 interior chamber and the combustion chamber?

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Page 61 1 A. I -- so if we look at how -- I mean, it's fairly 2 hard to see on Figure 1 because it's so small. But if we 3 look at Figure 2, we can see that there's a portion of the 4 interior chamber that forms an annulus around the valve 5 member, between the valve member and the nozzle body, if 6 you will. So between -- it's very hard to see the number 7 on whatever you call the valve body. The seat itself is 8 labeled, but it's hard to see what that's labeled. 9 Q. We can blow it up -- 10 MR. ABDELNOUR: Wait, wait, wait. Let him 11 finish his answer. 12 A. But the annulus there is part of the interior 13 chamber, and the valve, when it is closed, so when this 14 outwardly opening pintle in this depiction is closed, that 15 outwardly sweeping area presses against valves seat 112 16 forming a seal that separates the interior of the chamber 17 from the combustion chamber, which isn't shown, which is 18 outside of the -- you know, the dashed area around 112. 19 Q. (BY MR. WADE) All right. Dr. Quinlan, I want to 20 turn to your construction of the phrase "fluid passage 21 from said interior chamber to said combustion chamber." 22 And your proposed construction is that it's a "passage for 23 fuel to flow from the interior chamber to the combustion 24 chamber." 25 A. That is correct.	Page 63 1 direction? 2 MR. ABDELNOUR: Objection to form. 3 Q. (BY MR. WADE) Let me ask this. Are you saying 4 that the passage must only allow for fuel flow in one 5 direction, or is it possible for fuel to travel in both 6 directions? 7 A. Again, I think the patent is clear in its 8 description that the fuel direction is from the inlet to 9 the combustion chamber. 10 Q. Does the phrase "fluid passage" have a meaning to 11 a person of ordinary skill in the art contemporaneous with 12 the issuance of this patent? 13 A. I believe that a person of the ordinary skill in 14 the art reading this patent would know what a passage is 15 and put some -- you know, they would have some view of 16 what a passage is and what a passage isn't. 17 Q. Would you agree that a passage connects two 18 points? 19 A. I believe there is more to it than that. 20 Q. But one component of a passage would be that it 21 connects two points, right? 22 MR. ABDELNOUR: Objection, form. 23 A. I believe that a passage has to connect 24 something, otherwise it's not a passage. Yes, but that's 25 not a complete description of it.
Page 62 1 Q. Do you recognize that the '829 Patent discloses 2 an apparatus? 3 MR. ABDELNOUR: Objection to form. 4 A. I guess I'll need you to rephrase the question. 5 Q. (BY MR. WADE) You recognize that the '829 Patent 6 discloses a device? 7 MR. ABDELNOUR: Objection, form. 8 A. I recognize the '829 Patent discloses at least an 9 arrangement within a device. 10 Q. (BY MR. WADE) And your limitation of the claim 11 to have the flow of fuel from the interior chamber to the 12 combustion chamber, there's no disclosure in the '829 that 13 specifically requires that, is there? 14 MR. ABDELNOUR: Objection to form. 15 A. Well, let's -- let's look at the, you know, 16 permitting free flow from the inlet to the nozzle 17 orifices. It clearly gives a direction. I'm looking at 18 the quotation from paragraph 163. You have a 19 directionality to it, and I think that a person of the 20 ordinary skill in the art would also look at the 21 embodiment and figures and the discussion within the 22 patent and know the direction of the flow. And so that 23 shouldn't be removed from how we understand it to be. 24 Q. (BY MR. WADE) Is this limitation that you're 25 proposing -- does it allow for any flow in the other	Page 64 1 Q. (BY MR. WADE) Does the definition of fluid 2 passage known to someone in the ordinary skill in the art 3 have to include a direction of flow through it? 4 A. In general, I would say that a passage does not 5 have a directionality, but what I think is required here 6 is that the fluid has a direction that it flows within 7 this passage and that shouldn't be removed from its 8 definition. 9 MR. WADE: Let's go off the record. 10 REPORTER: Off the record at 12:39 p.m. 11 (Recess taken from 12:39 p.m. to 12:42 p.m.) 12 REPORTER: Back on the record at 12:42 p.m. 13 MR. WADE: Dr. Quinlan, that's all the 14 questions I have for you today. Thank you for your time 15 and suffering this video media. This isn't my favorite 16 way to do depositions, but it is efficient. With that, 17 the deposition is over. 18 MR. ABDELNOUR: I don't have any redirect. 19 REPORTER: Off the record at 12:42 p.m. 20 (Deposition concluded at 12:42 p.m.) 21 22 23 24 25

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1	CORRECTIONS AND SIGNATURE	1	IN THE UNITED STATES DISTRICT COURT
2	WITNESS: J. MATT QUINLAN, PH.D. DATE: JANUARY 12, 2023	2	FOR THE EASTERN DISTRICT OF TEXAS
3	PAGE LINE CHANGE REASON	3	MARSHALL DIVISION
4		4	WESTPORT FUEL SYSTEMS)
5		5	CANADA, INC.,)
6		6	PLAINTIFF,)
7		7	VS.)
8		8	CASE NO.)
9		9	2:21-CV-00455[JRG-RSP]
10		10	(LEAD CASE)
11		11	NISSAN NORTH AMERICA,)
12		12	INC.,)
13		13	DEFENDANT.)
14		14	JURY TRIAL DEMANDED
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1	I, J. MATT QUINLAN, PH.D., have read the foregoing	1	☐ X was requested by the deponent or a party before
2	deposition and hereby affix my signature that same is	2	the completion of the deposition and returned within 30
3	true and correct, except as noted on the correction	3	days from date of receipt of the transcript, 2/15/2023.
4	page.	4	If returned, the attached Changes and Signature Page
5		5	contains any changes and the reasons therefor;
6		6	_____ was not requested by the deponent or a party
7		7	before the completion of the deposition.
8		8	I further certify that I am neither attorney nor
9		9	counsel for, related to, nor employed by any of the
10		10	parties to the action in which this testimony was taken.
11		11	Further, I am not a relative or employee of any
12		12	attorney of record in this cause, nor do I have a
13		13	financial interest in the action.
14		14	Subscribed and sworn to on this the 16th day of
15		15	January, 2023.
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Exhibits		
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