

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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IGB AUTOMOTIVE LTD.

and I.G. BAUERHIN GmbH

Petitioner

vs.

GENTHERM GmbH

Patent Owner

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Case IPR2014-00666

Patent 7,229,129

VIDEO DEPOSITION OF JAMES RICE, Ph.D.

Washington, D.C.

Wednesday, March 25, 2015

9:11 a.m.

Reported by: Laurie Bangart, RPR, CRR, CLR

JOB NO. 13810

Video Deposition of  
James Rice, Ph.D.

Held at the offices of:

Knobbe Martens Olson & Bear  
1717 Pennsylvania Avenue, NW  
Washington, D.C. 20006  
(202) 640-6400

Taken pursuant to notice, before  
Laurie Bangart, Registered Professional  
Reporter, Certified Realtime Reporter and  
Notary public in and for the District of  
Columbia.

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## P R O C E E D I N G S

THE VIDEOGRAPHER: This is the beginning of DVD number 1 in the deposition of Dr. James Rice in the United States Patent & Trademark Office before the Patent Trial and Appeal Board, in the matter of IGB Automotive, Ltd., et al, versus Gentherm GmbH, case number IPR2014-00664.

Today's date is March 25, 2015. The time is approximately 9:11. The location of the deposition is Knobbe Martens at 1717 Pennsylvania Avenue, Northwest, Washington, D.C.

Would counsel please introduce yourself and state who you represent.

MR. JOHNSON: Good morning. John Johnson, Fish & Richardson New York, on behalf of the petitioner IGB.

MR. MOK: Jeffrey Mok, Fish & Richardson, on behalf of IGB.

MR. FILDES: Chris Fildes, Fildes & Outland, on behalf of IGB.

MR. BUNKER: Jared Bunker from the law firm of Knobbe Martens for patent owner Gentherm and the witness, Dr. Rice.

1 THE VIDEOGRAPHER: The court  
2 reporter is Laurie Bangart. My name is  
3 Conway Barker. Both of us represent  
4 TransPerfect Legal Solutions.

5 Would you please swear in the  
6 witness and we can proceed.

7 JAMES G. RICE, Ph.D.,  
8 having been first duly sworn, testified  
9 upon his oath as follows:

10 EXAMINATION BY COUNSEL FOR PETITIONER

11 BY MR. JOHNSON:

12 Q Good morning.

13 A Good morning.

14 Q I'm going to, just to start off, mark a  
15 couple of exhibits, provide those to you. I think  
16 you already have them in front of you.

17 A I don't have all the exhibits.

18 Q Oh, you don't? So Exhibit 1 is the '129  
19 patent.

20 (Exhibit 1 was marked for  
21 identification.)

22 BY MR. JOHNSON:

23 Q Do you recognize that?

24 A Yes, I do.

25

1 (Exhibit 2 was marked for  
2 identification.)

3 BY MR. JOHNSON:

4 Q And let me also hand you what's been  
5 marked as Exhibit 2, which is entitled "Expert  
6 Report of James Rice."

7 (Exhibit 3 was marked for  
8 identification.)

9 BY MR. JOHNSON:

10 Q While I'm at it, I'll also get into the  
11 record Exhibit 3, marked as Exhibit 3, which is  
12 entitled "Curriculum Vitae of James G. Rice."  
13 We're going to focus on these documents at least  
14 initially.

15 A Okay.

16 Q So I wanted to get them to you.

17 Just to make sure, on Exhibit 3, can you  
18 confirm that that's the full vitae that you  
19 provided in this case?

20 A Yeah, I already checked that, because  
21 it's amazing how many times they're missing  
22 pages --

23 Q Right.

24 A -- during the deposition.

25 Q Okay. All right. So I understand that

1 you have experience in patent cases. How would  
2 you describe that experience?

3 A I think I've provided litigation support  
4 in approximately 70 patent cases.

5 Q How many times have you testified in a  
6 patent case?

7 A Do you mean deposition or trial?

8 Q Both.

9 A Oh. Oh, boy. I'm not sure on the exact  
10 number of depositions, but I'd say it's probably  
11 30 to 40 times.

12 Q How about trial testimony?

13 A Patent cases?

14 Q Yeah, I'm limiting myself to patent  
15 cases right now.

16 A Four.

17 Q Four patent cases? Can you explain a  
18 bit about each of these experiences testifying in  
19 patent cases?

20 A Well, three of those were federal cases,  
21 and the fourth one was with the ITC.

22 Q So let's break it down. What about the  
23 federal cases; what were those cases about?

24 A A VCR, a heart catheter, and an  
25 automated cat litter box.



1 Q Did you represent the patent side or the  
2 accused infringement side in those cases?

3 A The VCR it was defense, the heart  
4 catheter was plaintiff, and the VCR was defense  
5 [sic].

6 Q And then what about this ITC case?

7 A Boy, I'm trying to remember what that  
8 was. I can't remember the device. It might have  
9 been -- again, I'm not sure of this, but I think  
10 it was a -- I can't remember the name of the  
11 device. I remember what it does. It's a device  
12 that separates oil and water at a well head site.

13 Q On that first case, the VCR case, so  
14 you -- did you opine on the validity or invalidity  
15 of the patent there?

16 A I think my involvement was more  
17 non-infringement.

18 Q So validity wasn't an issue in that  
19 case?

20 A I remember non-infringement issues, but  
21 I don't remember any invalidity issue.

22 Q How about the cat litter box case?

23 A Both.

24 Q Did you opine that the patent was  
25 invalid in that case?

1 A Yes. Well, I think so, yeah.

2 Q What was the result?

3 A We lost on one count, and that was the  
4 non-infringement count.

5 Q Was the patent upheld?

6 A Yes.

7 Q And how about the heat, the heat -- I'm  
8 sorry. The heat catheter case? Is that what you  
9 said?

10 A No, no. Heart catheter.

11 Q Heart catheter case. I'm sorry.

12 A We won.

13 Q And when you say you won, what do you  
14 mean by that?

15 A Jury verdict.

16 Q And in the 30 to 40 depositions, I just  
17 want to get a little bit more feel for your  
18 experience in patent cases. Can you elaborate  
19 some?

20 A Well, it's a fairly even mix of  
21 plaintiff and defendants, and it included both,  
22 you know, infringement and validity issues.

23 Q How about in the context of IPRs; have  
24 you provided testimony?

25 A Yes, I had one IPR.

1 Q Outside of this IPR?

2 A Yes.

3 Q And can you tell me about that IPR?

4 A It settled pretty quickly. I never was  
5 deposed, and it never got really beyond the point  
6 of writing a report.

7 Q Did you submit a report in that IPR?

8 A Yes, yeah.

9 Q But you were not deposed?

10 A No. Like I say, it settled rather  
11 quickly.

12 Q In connection with your engagement here,  
13 I just want to go back a bit in time. How did it  
14 come about that you became involved in this  
15 particular IPR here?

16 A That's kind of funny. I had a previous  
17 case with Knobbe Martens that was quite a while  
18 ago. That was back in I think maybe 2007 or 2008,  
19 but I don't believe they contacted me directly. I  
20 think I was contacted through a referral firm.

21 Q Through a search firm?

22 A Yeah.

23 Q Who did you work with in the  
24 2007/2008 --

25 A I can't remember. I don't remember. Is

1 he still there?

2 Q What experience do you have with respect  
3 to vehicle seats?

4 A Vehicle seats?

5 Q Yes.

6 A Other than sitting on them, none.

7 Q Have you designed a vehicle seat?

8 A No.

9 Q Have you sat on a vehicle seat that has  
10 a vented insert?

11 A Yes.

12 Q Explain that, please.

13 A I own one.

14 Q Which seat or which car?

15 A It's a Mercedes.

16 Q Can you give me the model year of that  
17 vehicle?

18 A It's an '06 SL500.

19 Q Describe the functionality of the seat  
20 in that vehicle.

21 A You know, I've never really looked at  
22 the design, so I can only really describe the  
23 functionality from the end user viewpoint.

24 Q Please.

25 A It's, it's both ventilated and heated.

1 It has a switch that operates, independently  
2 operates the ventilation and the heating. The  
3 heating works quite well. The ventilation is  
4 poor.

5 Q Why do you say it's poor?

6 A You can't even tell it's on.

7 Q Do you know anything about the structure  
8 of the heating and ventilation system in that?

9 A No, I do not.

10 Q So you haven't taken it apart?

11 A I haven't taken it apart, no.

12 Q You haven't looked at any of the specs  
13 with respect to that particular seating element?

14 A No. The reason I hesitate is I have  
15 rather extensive manuals and documentation. I  
16 have the user's, the dealer's software. So I've  
17 looked at quite a bit on the vehicle, but I don't  
18 think I ever noticed anything on the heating and  
19 ventilating for the seat.

20 Q Do you know who makes the seating, the  
21 heating and cooling element in that particular  
22 car?

23 A No, no.

24 Q Have you sat on any other seats that  
25 have heating and cooling?

1 A Yes.

2 Q Can you describe what seats you have sat  
3 on?

4 A I have another Mercedes that also has --  
5 it has heating, but it doesn't have cooling.

6 Q Which, which vehicle is this?

7 A That's an ML315.

8 Q Model year?

9 A '08.

10 Q Heating but no cooling?

11 A Correct.

12 Q All right. So you haven't designed  
13 seats. I just want to confirm you haven't  
14 designed heating with respect to seats that --

15 A Correct.

16 Q And just to make sure I get the record  
17 clear, you haven't designed cooling with respect  
18 to seats?

19 A Not with respect to seats, that's  
20 correct.

21 Q Have you had any previous engagements,  
22 you know, with respect to your work as it applies  
23 to seats?

24 A No, no. Automotive seats?

25 Q Well, any seats. We'll start broader.

1           A     I have had previous engagements with  
2     respect to seats, yes.

3           Q     What were those engagements about?

4           A     The previous Knobbe Martens was seats,  
5     but it was a folding seat that's used, for  
6     example, on a beach.

7           Q     Like a beach chair?

8           A     Yeah.

9           Q     But that seat didn't have anything to do  
10    with heating or cooling?

11          A     No. Well, you said we were getting  
12    broad.

13          Q     No, no, I hear you.

14                What did that -- what was the issue in  
15    that case about as it applied to that seat?

16          A     Well, it was patent infringement. The  
17    unique aspect of the seat is that it has a canopy.  
18    When it's unfolded and used, the canopy provides  
19    protection from sun, et cetera, but when you fold  
20    it up, the canopy becomes the case for the seat.

21          Q     The carrying element?

22          A     This folds up, and it folds up into a  
23    rectangular box that serves as a case for the, for  
24    the folded-up seat. It's a really nice little  
25    design. I still have two of them.

1 Q Did, did that case go anywhere?

2 A No.

3 Q It settled or --

4 A Yeah.

5 Q Did you give a deposition in that  
6 matter?

7 A I believe I did, yes.

8 Q And did you draft a report?

9 A Yes.

10 Q Where was that case located? What  
11 district? Do you recall?

12 A I don't recall.

13 Q All right. So let me just make sure I  
14 check this box off. Are you an inventor on any  
15 patents?

16 A No.

17 Q Have you ever filed for a patent  
18 application?

19 A No.

20 Q I understand from your CV, which has  
21 been marked as Exhibit 3, that you have a number  
22 of publications.

23 A Yes.

24 Q Any publications pertaining to seats?

25 A No.



1 Q Any publications that would pertain to  
2 air flow through orifices?

3 A Oh, yeah.

4 Q Could you identify those?

5 A Wait a minute. Air flow or just flow in  
6 general?

7 Q What's the difference?

8 A Well, you could have air, you could have  
9 steam, you could have water, you could have oil.  
10 There could be any number of different fluids  
11 flowing through an orifice.

12 Q So let's look at it from the perspective  
13 of air, not a steam or a liquid.

14 A Number 2. Number 3. Number 4. Oh, I'm  
15 sorry. Not number 4. 5. 7. A lot of these  
16 later ones are for what's called "computational  
17 fluid dynamics," which is a computer simulation  
18 method that's used to simulate and predict the  
19 flow of a fluid, which would include air and would  
20 include air flow through an orifice, but they are  
21 not specific to that particular application.  
22 They're more general, and that's basically almost  
23 all of them from 11 through 24.

24 Q Are you familiar with the, the inserts  
25 at issue in the patent litigation separate from

1 the IPR context?

2 A No.

3 Q So you haven't inspected any of the  
4 inserts, either the patent owner's inserts or the  
5 accused infringer's inserts?

6 MR. BUNKER: Objection. Form.

7 THE WITNESS: I have not.

8 BY MR. JOHNSON:

9 Q You haven't had an opportunity to do  
10 that?

11 A No.

12 MR. BUNKER: Objection to form.

13 THE WITNESS: I'm sorry. What was  
14 that?

15 MR. BUNKER: I just objected for  
16 the record.

17 BY MR. JOHNSON:

18 Q So it's, it's fair to say that you  
19 haven't conducted any testing on any seat inserts?

20 MR. BUNKER: Objection. Form.

21 THE WITNESS: I have not.

22 BY MR. JOHNSON:

23 Q Have you had any exposure to any kind of  
24 seat inserts like the ones that are part of this  
25 IPR process?

1 MR. BUNKER: Objection. Form.

2 THE WITNESS: Well, like I said, I  
3 have experience with the ones I mentioned  
4 earlier, and I'm not sure how they're -- I  
5 haven't taken the trim covers off to see how  
6 they are constructed.

7 BY MR. JOHNSON:

8 Q You mentioned two vehicles that you own  
9 currently --

10 A Yes.

11 Q -- that have -- one has a dual system, a  
12 heating and a cooling seat?

13 A Correct.

14 Q And the other one is a heating only.  
15 Have you had any other vehicles that have had  
16 heating and/or cooling seats?

17 A Yes.

18 Q Can you elaborate?

19 A I had a Jeep Grand Cherokee that had  
20 heated seats.

21 Q Can you give me a model year for that  
22 vehicle?

23 A I think it was an '08.

24 Q Any others?

25 A Yes, I had a 2001 Honda. I think that

1 had heated seats as well.

2 Q Do you recall the model?

3 A Acura. I'm sorry. No. Accord.

4 Q Do you recall anything about that 2001  
5 Honda Acura?

6 A Accord.

7 Q I'm sorry, the Honda Accord, right. Do  
8 you remember anything about that heated seat?

9 A Not really. It worked well.

10 Q When, when were you engaged in  
11 connection with this, this matter here?

12 A I think approximately November 2014.

13 Q And I know your rate is set forth in  
14 your report, but can you let us know what your  
15 rate is?

16 A \$350 an hour.

17 Q And you mentioned that a search company  
18 was involved in locating you?

19 A Yes.

20 Q Who was the search company?

21 A Thomson Reuters, I think. Wait a  
22 minute. I think it was Thomson Reuters. No, no,  
23 no, no. I think that's correct, yeah.

24 Q How do they get compensated for finding  
25 you?

1 A They add a surcharge.

2 Q Excuse me?

3 A They add a fee onto the hourly.

4 Q Do you know what that is?

5 A I do not.

6 Q So what have you done in connection with  
7 the '129 patent which is the subject to today's  
8 deposition?

9 A I provided this report.

10 Q And in preparing your report, what  
11 materials did you review?

12 A The cited prior art. I'm trying to  
13 think if I reviewed anything else. Yeah, I think  
14 the only thing that comes to mind is the prior art  
15 that's cited in the report.

16 Q Did you review the file history to the  
17 '129 patent?

18 A Yes.

19 Q What parts of the file history?

20 A I did a search through the entire  
21 directory and just a real quick review of the  
22 entire.

23 Q Anything else that you --

24 A Any other materials?

25 Q Yes. Any other materials?

1 A No, I don't believe so.

2 Q Any documents from the litigation?

3 A You mean the district court litigation?

4 Q Yes.

5 A No.

6 Q How about the previous papers filed in  
7 the IPR?

8 A Previous paper? Oh, I did review the  
9 IGB petition and the decision, and I also reviewed  
10 the, the Gentherm response to the petition.

11 Q Now, you mentioned you reviewed the  
12 cited prior art.

13 A Yes.

14 Q I just want to confirm. The prior art  
15 that's identified on Exhibit 1, you reviewed all  
16 of that prior art?

17 A No. I'm talking about Exhibit 1 itself.  
18 Is that what you're referring to?

19 Q You had mentioned that you reviewed the  
20 cited prior art, and so I want to make sure I  
21 understand what --

22 A Cited in my report.

23 Q Cited in your report?

24 A Correct.

25 Q Outside of the art cited in your report,

1 you didn't review other prior art?

2 A No.

3 Q Roughly speaking, how much time did you  
4 spend preparing your '129 report?

5 A Oh, I don't know.

6 Q Which is Exhibit 2.

7 A Correct. I know what I have spent total  
8 on this project since being retained, but that  
9 would be all five reports, and I'm not sure what  
10 the split is.

11 Q What's the total on the project since  
12 being retained?

13 A Approximately 200 hours.

14 Q Let's dig into some of the issues in  
15 your report.

16 You identify in your report "a person of  
17 ordinary skill in the art."

18 Do you remember that?

19 A Yes, I do.

20 Q How did you arrive at that definition?

21 A Well, I've worked in the automotive  
22 industry quite a bit, and I've also worked in  
23 automotive HVAC quite a bit, and I've worked with  
24 numerous engineers in those areas over the years.  
25 You know, based on all of my experience in those

1 years and the people I've worked with and the  
2 level of technology involved in the patents,  
3 that's how I arrived at those, that definition.

4 Q And from a timing standpoint, what date  
5 did you use to measure the person of ordinary  
6 skill in the art?

7 A Well, the same dates we're talking about  
8 here, early 2000.

9 Q When you say "early 2000," what do you  
10 mean?

11 A Let me check what we -- so this would  
12 be -- specifically in this case, this would be  
13 January 2001.

14 Q Why is the person of ordinary skill  
15 important in your mind?

16 A In my mind?

17 Q Yeah.

18 A Well, I think it sets a basic level of  
19 understanding that the person would have in  
20 reading and interpreting the various aspects of  
21 the patents.

22 Q Anything else?

23 A Well, I think it would have an impact on  
24 what one would consider to be obvious or not.

25 Q And in reviewing the prior art in this



1 case, did you apply any standard?

2 MR. BUNKER: Objection. Form.

3 THE WITNESS: Yes. I think I  
4 outlined what I considered to be the standard  
5 in the section I provided on the legal  
6 background.

7 BY MR. JOHNSON:

8 Q And what is that standard?

9 A You mean from a legal standpoint?

10 Q Whatever you applied.

11 A Could you repeat that question again?

12 Q Sure.

13 (Whereupon, reporter reads  
14 requested material.)

15 THE WITNESS: Standard for what?

16 BY MR. JOHNSON:

17 Q For evaluating the patentability of the  
18 claims at issue here.

19 A I'm sorry, but you're going to have to,  
20 you're going to have to ask me something a little  
21 more specific than that.

22 Q You provided a report --

23 A Yes, I did.

24 Q -- on the patentability of certain  
25 claims, right?

1 A Yes.

2 Q My question is: Did you apply any  
3 standard in your application?

4 A For what?

5 MR. BUNKER: Objection.

6 BY MR. JOHNSON:

7 Q With respect to whatever your opinion  
8 is.

9 A Well, if we can get to a specific  
10 opinion and ask me the same question.

11 Q What is your opinion with respect to the  
12 '129 patent?

13 A The patent is quite valid.

14 Q So what standard did you apply to get to  
15 your opinion?

16 A That there was -- please, we'll have to  
17 go get to a specific part of my report and ask me  
18 that question there. I don't know how to answer  
19 that question in such broad general terms.

20 Q But you were providing opinions on the  
21 validity of the patent?

22 MR. BUNKER: Objection. Form.

23 THE WITNESS: Sure. I represent it  
24 in this report.

25

1 BY MR. JOHNSON:

2 Q I'm simply asking: What standard did  
3 you apply in reaching that opinion?

4 MR. BUNKER: Objection. Form.

5 BY MR. JOHNSON:

6 Q If you don't know, that's fine.

7 A I, I don't know how to answer that  
8 question.

9 Q If you want to take time to look at your  
10 opinion to refresh your recollection as to what  
11 standard you applied, that's fine.

12 MR. BUNKER: Objection. Form.

13 THE WITNESS: Well, I laid out here  
14 in my background my approach to claim  
15 construction, the issues of patent validity,  
16 prior art and whether a patent is anticipated  
17 or not.

18 BY MR. JOHNSON:

19 Q So my question is simply: What is the  
20 standard that you applied?

21 MR. BUNKER: Objection. Form.

22 THE WITNESS: I'm sorry. I don't  
23 understand the question.

24 BY MR. JOHNSON:

25 Q How about the issue of claim

1 construction? Did you engage in any claim  
2 interpretation in arriving at any of your  
3 opinions?

4 A I provided an interpretation for the  
5 claim term "spacer," yes.

6 Q Okay. Did you provide a claim  
7 construction for any other terms in the '129  
8 patent?

9 A I don't -- let me see. Hold on a  
10 second.

11 No. Only spacer.

12 Q Only the term spacer?

13 A Correct.

14 Q And did you apply any principles of  
15 claim construction in determining what you believe  
16 spacer means?

17 A Yes. The primary source of my  
18 construction was the patent specification itself.

19 Q How do you go about construing a patent  
20 claim generally?

21 MR. BUNKER: Objection. Form.

22 THE WITNESS: Well --

23 BY MR. JOHNSON:

24 Q As an expert, as you being the expert,  
25 how would you go about that general --

1           A     Well, first of all, my first step would  
2     be to see if the claim terms are clear and  
3     unambiguous and can be interpreted according to  
4     the plain and ordinary meaning of the terms in the  
5     claim or whether there are some terms that may  
6     require some special interpretation, some special  
7     construction.

8           Q     Anything else that you do?

9           A     Well, again, that depends on the  
10    particular case at hand. I may at some point in  
11    some cases go to extrinsic evidence.

12          Q     What is extrinsic evidence, in your  
13    opinion?

14          A     Something external to the patent itself,  
15    which would be, for example, a dictionary or a  
16    textbook.

17          Q     Are there other forms of extrinsic  
18    evidence that you might rely upon?

19          A     Well, of course there are. There may be  
20    other forms.

21          Q     And what might they be?

22          A     I don't know. I'd have to look at a  
23    particular case and see what they might be.

24          Q     In the opinions that you provide in your  
25    cases, do you always provide the construction, or

1 do you ever rely upon what the attorneys, you  
2 know, might tell you is the proper construction?

3 A Both. I mean I could -- you know, in  
4 some cases I'm given a proposed construction by an  
5 attorney, and of course, I would have to be in  
6 agreement with that before I could use it.

7 Q In this particular case you mentioned  
8 there was a definition for, I believe you said the  
9 term spacer, right?

10 A Correct.

11 Q Is that something that you arrived at on  
12 your own, or is that something that the legal team  
13 provided to you?

14 MR. BUNKER: Objection. Form.

15 THE WITNESS: I don't recall  
16 whether they ever actually provided me one,  
17 but I know I did provide my own.

18 BY MR. JOHNSON:

19 Q Is the one in the report --

20 A It's my own.

21 Q If you need a break at any time,  
22 please --

23 A Sure.

24 Q -- just interrupt.

25 A Well, I'm at the age I may need frequent

1 breaks, but it's not at that point yet.

2 Q We've been going about 40 minutes, so  
3 whenever you're ready, just let me know, and we'll  
4 do that.

5 MR. BUNKER: Okay.

6 BY MR. JOHNSON:

7 Q All right. So let's take a look at  
8 Exhibit 1, which is the '129 patent.

9 A Okay.

10 Q What's this generally about, this  
11 patent?

12 MR. BUNKER: Objection. Form.

13 THE WITNESS: A ventilated seat  
14 insert or an insert for ventilating a seat.

15 BY MR. JOHNSON:

16 Q And what do you believe to be the novel  
17 aspect of what is claimed in this '129 patent?

18 MR. BUNKER: Objection. Form.

19 THE WITNESS: Well, I think one  
20 novel aspect of it is the distribution of the  
21 holes for the ventilating air to escape the  
22 seat.

23 BY MR. JOHNSON:

24 Q Are there other novel aspects?

25 MR. BUNKER: Objection. Form.

1 THE WITNESS: Well, I think that's  
2 the primary novel aspect of this particular  
3 design.

4 BY MR. JOHNSON:

5 Q So that means you don't believe there  
6 are other aspects that are novel?

7 MR. BUNKER: Objection. Form.

8 THE WITNESS: I'm not sure.

9 BY MR. JOHNSON:

10 Q Why aren't you sure?

11 A Well, you know, one thing about this  
12 particular area of, of art is there are a lot of  
13 patents in this area, and I certainly haven't  
14 looked at all of them, so I can't really say with  
15 any clarity what might be novel relative to what  
16 else is out there, but I do believe that hole  
17 pattern is.

18 Q So if you could take a look at claim  
19 number 8 in the patent.

20 A Yes.

21 MR. BUNKER: I don't mean to  
22 interrupt. Claim 8 is not in this IPR,  
23 Mr. Johnson, so --

24 MR. JOHNSON: I'm asking about what  
25 he's testified to as to the novel aspect.



1 MR. BUNKER: It doesn't have  
2 anything to do with this IPR, and we'll have  
3 to suspend the deposition and call the board  
4 to limit the deposition if we're going to be  
5 asking questions about claims that are not in  
6 this IPR.

7 MR. JOHNSON: I will follow the  
8 instructions. I'm going to ask him about  
9 what he just testified.

10 MR. BUNKER: If you're asking about  
11 claim 8, we need to take a break and call the  
12 board, because it's not in this IPR. This is  
13 not a fishing expedition for the district  
14 court.

15 Do you understand?

16 MR. JOHNSON: So you're instructing  
17 the witness not to answer?

18 MR. BUNKER: I'm saying I'm going  
19 to suspend this deposition and call the board  
20 if you're going to ask about claim 8.

21 MR. JOHNSON: Let me ask the  
22 question and then let's see if you object to  
23 it --

24 MR. BUNKER: Okay.

25 MR. JOHNSON: -- because I don't

1 think it's outside the scope of the  
2 deposition.

3 MR. BUNKER: After you ask your  
4 question, I'm going to ask you to explain how  
5 it's relevant to this IPR.

6 BY MR. JOHNSON:

7 Q So let's go back. You described,  
8 Dr. Rice, what you thought was the novel aspect of  
9 the invention, right?

10 A I said "a" novel aspect of the  
11 invention, yes.

12 Q And what, again, was that novel aspect  
13 that you testified about?

14 A The hole distribution that's discussed  
15 in -- the hole distribution in the trim cover,  
16 yes.

17 Q Right, and so my question as to the  
18 distribution, I think you said the distribution of  
19 the holes; is that right?

20 A Yes.

21 Q Does the distribution of the holes  
22 appear in claim 8?

23 MR. BUNKER: Let's take a break.

24 How does this relate to the claims that are  
25 at issue in this IPR, Mr. Johnson?

1 MR. JOHNSON: It relates to what  
2 he's testifying as to the novel aspect.

3 MR. BUNKER: That wasn't my  
4 question. My question is: How does it  
5 relate to the claims that are at issue in  
6 this IPR?

7 MR. JOHNSON: I think it clearly  
8 relates to the issues related to what he's  
9 defining to be the novel aspect, but let's  
10 move on, and, you know, we can explore it on  
11 a break, because we're really spending a lot  
12 of time.

13 MR. BUNKER: That's fine.

14 MR. JOHNSON: I'd rather discuss  
15 off the break this issue.

16 MR. BUNKER: Fine.

17 BY MR. JOHNSON:

18 Q With respect to a ventilated seat  
19 system, what are the design goals, in your view?

20 MR. BUNKER: Objection. Form.

21 THE WITNESS: You're talking about  
22 in the ventilating mode; is that correct?

23 BY MR. JOHNSON:

24 Q Yes.

25 A Well, I would think it would be to

1 provide effective ventilation to the seat  
2 occupant.

3 Q And how would one achieve effective seat  
4 ventilation to the occupant?

5 MR. BUNKER: Objection. Form.

6 THE WITNESS: You know, that's an  
7 incredibly broad question, and I'm not sure I  
8 can answer that in just one statement, but I  
9 would say one objective would be to provide a  
10 uniform distribution of air flow to the  
11 occupant's areas and contact with the seat.

12 BY MR. JOHNSON:

13 Q What does "air flow" mean to you?

14 MR. BUNKER: Objection. Form.

15 THE WITNESS: It's air which has a  
16 moving velocity.

17 BY MR. JOHNSON:

18 Q Is that it?

19 A For air flow?

20 Q Yes.

21 A I think that's adequate.

22 Q How does one measure air flow?

23 A Oh, gosh. There's any number of ways.

24 Q Please.

25 A You can have a device which measures

1 total air flow, which might be what's called an  
2 anemometer, and those can be of various types. If  
3 you're interested in the distribution of air flow,  
4 you would need a device that is able to measure a  
5 localized velocity of the air, which can be  
6 something like -- well, there's something called a  
7 hot wire anemometer. There are pitot probes.  
8 There are laser Doppler systems.

9 Q And these are used in connection with  
10 the designing of seats?

11 A With what?

12 Q These are used in connection of the  
13 design of seats?

14 A They could be.

15 Q Do you know if they are?

16 A I don't know if they actually -- no, I  
17 don't know if they are or not.

18 Q What about air flow rate? How would you  
19 describe air flow rate?

20 A Well, normally that's -- well, there's  
21 two types of air flow rates, either a mass flow  
22 rate or a volume flow rate. The mass flow rate  
23 would be, for example, kilograms per second, and  
24 the volume flow rate typically is cubic feet per  
25 minute, CFM, but it could also be other units of

1 measurement.

2 Q How do you calculate air flow through a  
3 hole, like a hole in a seat?

4 A How would I do it?

5 Q How would one of ordinary skill in the  
6 art do it?

7 A Well, it depends.

8 Q We could -- you know, I don't want to  
9 interrupt, but we could do it from how you would  
10 do it and then how one of ordinary skill in the  
11 art would do it as well.

12 A Well, it depends. It's much -- it's  
13 more and more common to use computational fluid  
14 dynamics techniques to do this sort of  
15 calculations which are by far the most accurate  
16 method to do those calculations today.

17 Q So is that how one of ordinary skill in  
18 the art would do it?

19 A It could have been, yes. There are  
20 other methods available, but that's a very popular  
21 method, and it was available in this time period.

22 Q Explain how one would go about  
23 performing a computational fluid dynamics analysis  
24 with respect to the air flow through a hole at the  
25 time of the invention.

1           A     First of all, you do a full one or two  
2     or three-dimensional model of the configuration,  
3     which would include the layers of the system and  
4     would include the trim cover with the holes in  
5     that trim cover. That model would look -- it  
6     would look like something like what's shown in the  
7     figure on the page.

8           Q     And which figure are you referring to?

9           A     It would look like Figure 1.

10          Q     So in the context of Figure 1, explain  
11     this two to three-dimensional computational fluid  
12     dynamics analysis that one could perform to  
13     determine the air flow rate through these holes  
14     that are shown.

15          A     Well, you would develop a three-  
16     dimensional model of the insert which would look  
17     very much like Figure 1, and to each of those  
18     layers in the model, you would prescribe the flow  
19     characteristics of that layer. For example, the  
20     spacer layer 24. The CF data model would need  
21     what's called a resistance coefficient for each  
22     direction which basically provide a pressure drop  
23     in a given direction as a function of the velocity  
24     in that direction.

25                   MR. BUNKER: Is this a good time to

1 take a break? I don't want to interrupt the  
2 line of questioning.

3 MR. JOHNSON: Yeah, that's fine.  
4 I'll just remind the witness that discussing  
5 the subject matter of your testimony, given  
6 that the deposition has started, should be  
7 respected.

8 THE WITNESS: Understood.

9 MR. JOHNSON: Thank you.

10 THE VIDEOGRAPHER: Off the record  
11 at 10:00.

12 (Whereupon, a short recess was  
13 taken.)

14 THE VIDEOGRAPHER: This is the  
15 beginning of DVD labeled number 2 in the  
16 deposition of Dr. Rice. On the record at  
17 10:13.

18 BY MR. JOHNSON:

19 Q Before we took our break, Dr. Rice, you  
20 explained in the context of Figure 1 the  
21 development of a three-dimensional model. Can you  
22 go back to that and continue your explanation of  
23 the modeling that one of skill in the art would  
24 do?

25 A Yes. So I was describing that you would



1 first develop a geometric model of the device to  
2 be analyzed and simulated, and that would look  
3 very much like what's shown in Figure 1, and then  
4 you would -- the next step in that process would  
5 be to describe the fluid flow characteristics of  
6 each of those layers in the model.

7           Primarily the -- in that process you  
8 would have to describe the fluid flow  
9 characteristics of the spacer layer in particular,  
10 which is shown there as number 24, and those fluid  
11 flow characteristics would be primarily what we  
12 call loss coefficients for each of the three  
13 directions within the object. Basically in  
14 layman's terms, those are the resistance to flow  
15 in each of those three directions.

16           I don't -- you wouldn't need resistance  
17 terms from any of the other layers, just that  
18 spacer layer itself, and then once you describe  
19 the resistance coefficient in geometry or the flow  
20 field distribution, then you would have to  
21 describe some other what we call "boundary  
22 conditions," which would include, for example, the  
23 pressure at the exterior of the device, which  
24 would be in this case just simply atmospheric  
25 pressure.

1           And then a couple of different ways to  
2 do the inlet conditions. In other words, in this  
3 case it's receiving the flow from a fan, and there  
4 are various methods to input the flow from the  
5 fan. You can use a pressure-based method or  
6 velocity-based method, or some of these software  
7 packages have built-in fan curves that you could  
8 use for a particular fan.

9           And once you have all of that  
10 information described, the results of that  
11 calculation which you're interested in would be  
12 the distribution of flow coming out of each of  
13 those flows, holes.

14       Q     Each of the holes?

15       A     Mm-hmm, yes.

16       Q     And you're referring to, for example, in  
17 Figure 1 hole number 22?

18       A     Yes.

19       Q     How would the seat designer go about  
20 this work that you just described?

21           MR. BUNKER: Objection. Form.

22           THE WITNESS: How would he do what?

23 BY MR. JOHNSON:

24       Q     How would he do this, this work that you  
25 just described?

1           A     I thought I just described that.

2           Q     What, you know, what would he actually  
3 do to get this work that you just described?

4                     MR. BUNKER:  Objection.  Form.

5                     THE WITNESS:  I think I just  
6 described what he would actually do.  He  
7 would actually build the model.

8 BY MR. JOHNSON:

9           Q     Build the model of the seat insert?

10          A     Yes.

11          Q     Okay.

12          A     He would prescribe the flow  
13 coefficients.  He would prescribe the inlet  
14 conditions and the boundary conditions.  Those are  
15 the steps.

16          Q     And just what you -- he gets output?

17                     MR. BUNKER:  Objection.  Form.

18 BY MR. JOHNSON:

19          Q     So how would he get the output of what  
20 you just described?

21                     MR. BUNKER:  Objection.  Form.

22                     THE WITNESS:  It generally comes in  
23 basically two forms.  Generally there's a  
24 printed output which would show him what the  
25 flow velocity and what the flow rates were at

each of those holes and throughout the entire model if he wanted, and then there's also graphical output, which would throw -- would superimpose, for example, the velocity vectors of the fluid exiting the holes on an image of the device.

BY MR. JOHNSON:

Q Would the seat designer use special software to get these reports?

MR. BUNKER: Objection.

THE WITNESS: That's all done  
with -- yes.

BY MR. JOHNSON:

Q What kind of software would one use?

A As I said initially, there's computational fluid dynamics software, coupled with solid modeling software, for example, or CAD software.

Q CAD software?

A Yes.

Q Earlier you said that an objective of a ventilated seat system is to provide a uniform distribution of air flow. Is that an accurate --

MR. BUNKER: Objection. Form.

1 BY MR. JOHNSON:

2 Q -- characterization?

3 A I think that's an accurate  
4 characterization of one objective.

5 Q What would be some of the other  
6 objectives?

7 A To provide --

8 MR. BUNKER: Objection. Form.

9 THE WITNESS: To provide that air  
10 flow at a minimal cost.

11 BY MR. JOHNSON:

12 Q Other objectives?

13 A Minimal noise.

14 Q Other objectives?

15 A Perhaps minimum vibration to the seat  
16 occupant.

17 Q Anything else?

18 A Manufacturability.

19 Q Any other objectives?

20 A Those are all fairly broad, but I think  
21 they're all reasonably accurate, yes.

22 Q Just based on our discussion so far,  
23 what trade-offs would the designer consider going  
24 about creating a seat insert with the objective of  
25 providing a uniform distribution of air flow?

1           A     I can't answer --

2                   MR. BUNKER:  Objection.

3                   THE WITNESS:  I can't answer that a  
4           priori.  I mean I'd have to see a particular  
5           situation.  You're talking about tradeoff.  
6           You're talking about one design approach  
7           versus a second design approach, and there's  
8           going to be a tradeoff between the two.  I  
9           can't answer that unless I know what we're  
10          talking about here.

11                  MR. BUNKER:  Pause just one second  
12          after the question.  Sometimes I'll need to  
13          object.

14                  THE WITNESS:  Okay.

15                  MR. BUNKER:  Thanks.

16  BY MR. JOHNSON:

17           Q     Let me move into something.  You had  
18          mentioned a fan moments ago.  You talked a bit  
19          about a fan, and I want to just get a general  
20          understanding of how a fan operates, so can you  
21          provide an explanation of how a fan will operate?

22           A     Yeah.  Now, obviously a fan operates to  
23          provide a certain flow rate, but in general to do  
24          that, it has to overcome a certain pressure drop.  
25          In other words, the outlet of a fan -- let's say

1 our exit pressure here is atmospheric pressure.  
2 Then there has to be a pressure higher than  
3 atmospheric at the inlet so that you get fluid  
4 flow through the device. So a fan will operate,  
5 so to speak, in the face of a certain pressure  
6 drop that's required to be overcome.

7 Now, the pressure drop through the  
8 device varies with the flow rate. At very low  
9 flow rate, you're going to have a relatively low  
10 pressure drop. As you increase the flow rate  
11 through the device, then you'll get higher and  
12 higher pressure rate.

13 Now, the fan has what's called a certain  
14 fan curve. In other words, it's the flow rate  
15 that the fan will provide at a given pressure  
16 drop. So you match the fan to the device that  
17 you're providing flow through, such that the  
18 pressure drop through the device and the resulting  
19 mass flow matches the pressure rise of the fan at  
20 that same match flow. So that determines for a  
21 particular fan what flow it will provide through  
22 the device.

23 Q That's helpful.

24 If we could step back, and what I want  
25 to do is understand just how generally a fan

1 works. How does a fan create the air flow, for  
2 example?

3 A How does it create the air flow?

4 Q Yeah.

5 A It depends on the type of fan, but in  
6 general it has some sort of rotating blade, and  
7 that rotating blade yields a pressure rise.

8 Q And so you did mention there are  
9 different types of fans, and I would agree with  
10 that. The types of fans that would be used in  
11 connection with, you know, seat inserts for  
12 providing some form of ventilation, let's kind of  
13 discuss it in those terms.

14 A Unfortunately, that doesn't narrow it  
15 down to a single type.

16 Q So would there be different types of  
17 fans that would be used in connection with the  
18 kinds of insert we're talking about?

19 A It could be, yes.

20 Q Could you just give me the examples of  
21 the different kinds of fans that --

22 A Well, a simple bladed fan, which is  
23 probably the most common, or it could be a  
24 squirrel cage type of fan, but I think the bladed  
25 type is more common, but one of the patents



1 mentioned using it where the, the flow was  
2 actually provided by the HVAC system of the  
3 automobile itself, and in that case they always  
4 use blowers, squirrel cage blowers.

5 Q The HVAC type of system wouldn't use a  
6 bladed fan then?

7 A No.

8 Q When you say "squirrel cage blower,"  
9 what does that, what does that mean?

10 A You know a squirrel cage that they run  
11 on?

12 Q Yeah. Okay.

13 A It looks like that.

14 Q All right. So let's look at the simple  
15 bladed fan. How does that work? Just really in  
16 kind of real simple explanatory terms, how does  
17 the bladed fan work?

18 A You have a rotating fan blade.

19 Q Yes.

20 A It has a high pressure side and a low  
21 pressure side, pressure side and suction side of  
22 what we call the fan blade, and that induces a  
23 pressure rise in the fluid that's flowing as a  
24 result of the fan, and that pressure rise is sort  
25 of the -- are you familiar with an aircraft wing

1 that has a high and low pressure?

2 Q No.

3 A A fan blade is exactly the same way.

4 Well, you know that the wing provides lift to keep  
5 the plane in the air?

6 Q Yes.

7 A It does that because the pressure on the  
8 bottom side of the wing is higher than the  
9 pressure on the top side.

10 Q Makes sense. So with respect to the  
11 fan --

12 A The fan blades operate the same way as  
13 an airplane wing.

14 Q You have the blades, and what you're  
15 saying is on one side you're going to have the  
16 high pressure side; the other side will be the low  
17 pressure side?

18 A It induces a high and low pressure in  
19 the fluid that is rotating, and that imparts a  
20 pressure rise to the fluid as it goes, passes  
21 through the fan.

22 Q So the high pressure side is the side  
23 where the air is traveling in that direction?

24 A Air is traveling on both sides.

25 Q Yes. I want to just make sure I have

1 for the record what side is the high pressure side  
2 and what side is the low pressure side?

3 A Directional rotation is the high  
4 pressure side. It's swinging that way.

5 Q So what happens if you reverse the fan  
6 blades, the direction of the fan blades?

7 A Depends on the fan blades. Some of them  
8 might work the other way. Some of them -- it  
9 depends on the design of the blade. Some of them  
10 will work okay in reverse, and some of them won't.

11 Q Because you can design a fan that will  
12 allow for --

13 A You generally --

14 THE REPORTER: I'm sorry. Can you  
15 say the question again?

16 THE WITNESS: You generally design  
17 them to go one way, but the simpler ones that  
18 have just simple flat blades will operate in  
19 both directions, but usually they operate  
20 better in the direction that they're designed  
21 for.

22 BY MR. JOHNSON:

23 Q I guess I'm thinking of a fan I have at  
24 home where you can reverse the direction and then  
25 you can have the flow go the other way.

1           A     Exactly, but you'll notice on those  
2 designs, the blades are flat.

3           Q     Okay.

4           A     So they're not preferentially shaped for  
5 one direction or the other, and you'll notice in  
6 fans like a room ventilating fan, they're the ones  
7 that have -- their blades are not generally the  
8 better ones. The blades are not flat.

9           Q     I want to get back to the comment you  
10 made on air flow rate through an orifice. We  
11 started to talk about how to calculate that, and I  
12 want to explore what parameters would be used in  
13 such a calculation.

14          A     Well, in general, the parameters that  
15 you require -- it's going to vary as to how you do  
16 the calculation. If you're using a CFD approach  
17 like I was talking about here, the basic  
18 parameters that you need are the geometry of the  
19 device, temperature, exit pressure, but for  
20 something like an orifice, you don't need any flow  
21 resistance terms unless you're doing a relatively  
22 crude calculation where you replace the whole  
23 orifice, which is simply a resistance term.

24          Q     CFD? I apologize.

25          A     Computational fluid dynamics.

1           Q     What about the diameter of the orifice;  
2     how does that impact the flow rate?

3           A     It directly impacts the flow rate.

4           Q     So if the diameter is made larger --

5           A     More flow.

6           Q     And what about if the fan that's used in  
7     connection with the system that we're talking  
8     about hypothetically right now, what if it's a  
9     blower versus a suction type of fan?

10                   MR. BUNKER:  Objection.  Form.

11     BY MR. JOHNSON:

12           Q     How does that impact the flow?

13                   MR. BUNKER:  Objection.

14     BY MR. JOHNSON:

15           Q     Does that make any sense to you?

16                   MR. BUNKER:  Objection.  Form.

17                   THE WITNESS:  Not really.  I mean  
18     depending on whether it's blowing or sucking.

19                   Okay.  So we got this device  
20     sitting here, and we've got a fan sitting  
21     somewhere upstream or downstream of it.  
22     You're saying does the fan, whether it's  
23     blowing or sucking, have any influence on the  
24     flow rate?

25

1 BY MR. JOHNSON:

2 Q Not exactly. Why don't we look at  
3 Figure 1 of Exhibit 1, which is the '129 patent.  
4 This is what you were talking about earlier with  
5 respect to the CFD analysis, I believe.

6 A Yes.

7 Q Okay. So let's have this discussion in  
8 the context of Figure 1. Where would -- just, you  
9 know, can you draw where a fan might be located?  
10 Just sketch in a little fan or just a notation  
11 where a fan might be located. Then I'll ask you  
12 the questions as to the location of the fan --

13 MR. BUNKER: Objection. Form.

14 BY MR. JOHNSON:

15 Q -- on that particular --

16 A Well, you know, this is not entirely  
17 accurate, because the fan here is located on the  
18 tail. So Figure 1 is not entirely accurate. In  
19 other words, if I were to do this with the CFD, I  
20 would have to include the extension that goes all  
21 the way to the fan.

22 Q You couldn't put a fan on the device of  
23 Figure 1?

24 A It wouldn't represent what's physically  
25 there.

1 Q Why not?

2 A Why not?

3 Q Yeah.

4 A Because the fan is not mounted on that  
5 portion that's shown in Figure 1. It's mounted on  
6 that tail. And what you're doing with the CFD  
7 model is you're trying to get an accurate  
8 representation in the model of what's physically  
9 present. So the model could include the tail  
10 extension there and go all the way out to where  
11 the fan is attached, so it would include that  
12 curved section as well as the flat portion up here  
13 in the seat.

14 Q So you're saying that if a company  
15 brought a prototype of Figure 1 to you, all right,  
16 a bag like that without, you know, the cut-aways  
17 and what-have-you, and they said we want to get a  
18 CFD analysis performed, and, you know, so we need  
19 to select a particular fan to mount somewhere on  
20 this device.

21 A Right.

22 Q You're saying you can't do that?

23 MR. BUNKER: Objection. Form.

24 BY MR. JOHNSON:

25 Q You couldn't do that, rather?

1           A     I could do that, but what I'm going to  
2 tell them is, okay, show me actually what you've  
3 got and what you actually have with the physical  
4 model. Bring me the physical model. Show it to  
5 me. Show me where the fan is mounted and how it  
6 feeds into the cushion, and I'll model that.

7           Q     So let's, let's just go on a  
8 hypothetical here that this is what we're working  
9 with, this bag as shown in Figure 1.

10          A     Figure 1 doesn't show everything that  
11 you have on the back. There would be a back edge  
12 that extends down into that tail. Now, if they  
13 just wanted me to model this flat portion, I would  
14 at least have to see that back edge, which is not  
15 shown here in Figure 1, it's not visible, to see  
16 how big it is, and then I'd have to prescribe --  
17 since we're not including the fan, I can model it  
18 without including the fan.

19          Q     Well, I'd like you to include the fan,  
20 because I'm trying to understand the operation of  
21 the fan.

22          A     I can't include it in the back of that.  
23 I can't include it anywhere on what's shown in  
24 Figure 1. It's not appropriate.

25          Q     How about we discuss this line in the



1 context of Figure 2 and 3 then? Does that help  
2 you?

3 A Okay. Yeah, fine.

4 Q If you look at Figure 3, for example, or  
5 Figure 2, whichever you prefer, does this provide  
6 a better context for you to describe the fan  
7 operation?

8 MR. BUNKER: Objection. Form.

9 THE WITNESS: I don't see how that  
10 really provides anything that would provide a  
11 better context for the fan operation. I mean  
12 I thought I already described that. The fan  
13 is going to operate the same no matter where  
14 it's mounted. I think it provides a better  
15 context in terms of what would the overall  
16 CFD model include and look like.

17 BY MR. JOHNSON:

18 Q We were discussing air flow rate through  
19 an orifice, and you had been describing how to  
20 calculate air flow rate through an orifice, right?  
21 We then got into discussing concerning how a fan  
22 operates.

23 A Right.

24 Q And what I'd like to do is talk about  
25 how that fan would operate in conjunction with the

1 subject invention, you know, in your opinion as an  
2 expert in this case.

3 So it sounds like, based on our review  
4 of these figures, you can't do that?

5 MR. BUNKER: Objection. Form.

6 THE WITNESS: Actually, I thought I  
7 did do that already.

8 BY MR. JOHNSON:

9 Q Yeah, well --

10 A Is there something else you would like  
11 to know? Ask me a question.

12 Q Well, let's draw a fan on Figure 1, and  
13 then let's, let's go through the questions of it  
14 then. You said that you couldn't do that.

15 A That's right. I can't do that, because  
16 it's inappropriate. If I was doing a model of  
17 this, there would be no fan attached to what's  
18 shown in Figure 1. It's attached as shown in  
19 Figure 2.

20 Q But you could put the fan on --

21 A Figure 1 serves -- the purpose of Figure  
22 1 is to show the holes and the openings relative  
23 to the, to the insert, not the fan.

24 Q Well, let's do a hypothetical. Let's,  
25 let's draw the fan. I'll draw it for you. May I

1 have Exhibit 1, please?

2 A It doesn't fit.

3 Q You can explain that. You can explain  
4 your testimony on that.

5 A I just did.

6 Q You haven't seen where I'm going to draw  
7 it.

8 A I don't care where you draw it on that.  
9 It's inappropriate. It doesn't work.

10 Q Okay. Well, you can explain why it  
11 won't work after I draw it.

12 It's a very simple lead line that I put  
13 in. Can you see the lead line that I put in?

14 A This thing?

15 Q Yeah.

16 A Okay. What?

17 Q What is the thing that you're referring  
18 to?

19 A It's the letter F encircled with a line  
20 that goes over to the device shown in Figure 1.

21 Q Is it okay for you to understand F to  
22 mean fan?

23 A Oh, okay. Yeah, sure.

24 Q So if you were given a device  
25 embodied -- an embodiment of that Figure 1, okay,

1     you know, not as shown in cut-away, but an actual  
2     device, and the fan was placed as shown, could you  
3     perform your analysis?

4                 MR. BUNKER:  Objection.  Form.

5                 THE WITNESS:  Well, of course, if  
6                 you're going to have a fan over there, you're  
7                 going to have some method of getting the flow  
8                 from the fan into the spacer layer 24, which,  
9                 of course, you haven't shown.

10  BY MR. JOHNSON:

11                Q     How would you do that?

12                A     How would I do that?

13                Q     Yeah.  Let's say in order to solve the  
14     puzzle here, you were provided with the fan, and  
15     then somebody said, Dr. Rice, we want to get this  
16     analysis done as you described during this  
17     examination.  How would you go about and do it?

18                MR. BUNKER:  Objection.  Form.

19                THE WITNESS:  I would have to model  
20     the geometry of the inlet tube going from the  
21     fan into the interior of what's shown in  
22     Figure 1.  That would probably be some sort  
23     of curved tube.

24  BY MR. JOHNSON:

25                Q     And you could do that?

1           A     Sure.  It doesn't make any sense, but I  
2     can do it.

3           Q     Why doesn't it make any sense?

4           A     Why would you mount the fan on the front  
5     edge of the seat?  Is the guy going to be kicking  
6     it?

7           Q     Where would you mount it?

8                     MR. BUNKER:  Objection.  Form.

9                     THE WITNESS:  Like it's shown in  
10    Figure 2.

11   BY MR. JOHNSON:

12          Q     So if you want to, if you want to go  
13    through this exercise as shown in Figure 2, as I  
14    explained, let's do it.  That's fine.

15          A     I already did.  I explained how your  
16    geometric model would now extend down into the  
17    tail portion that's shown in Figure 2, then go  
18    down to and include the point at which the fan is  
19    mounted.

20          Q     All right.  Let's utilize your Figure 2.  
21    What kind of fan is in there?

22                     MR. BUNKER:  Objection.  Form.

23                     THE WITNESS:  It's not really  
24    enough detail shown to really describe it.  I  
25    assume it's some sort of bladed fan.

1 BY MR. JOHNSON:

2 Q Were you able to find anything in there  
3 that helps you with respect to the kind of --

4 A At one point it says it's a bladed fan,  
5 I believe.

6 No. It just refers to it as an "air  
7 mover." It doesn't really say whether it's bladed  
8 or not.

9 Q Let's explore what happens during  
10 operation of the fan, all right, in the context of  
11 Figure 2.

12 So I think you mentioned you had a  
13 Mercedes, and you turned on a button, perhaps, to  
14 cool the seat; is that right?

15 A Yeah, the seats don't have any sort of  
16 controller associated with the fan. It's just  
17 simply an on/off.

18 Q Presumably the on/off operates some form  
19 of an air mover in the Mercedes.

20 A I presume so.

21 Q So in this Figure 2 would you presume  
22 that as well?

23 MR. BUNKER: Objection. Form.

24 BY MR. JOHNSON:

25 Q That there would be some sort of switch

1     that would allow you to turn on what is described  
2     as an air mover --

3           A     Sure.

4           Q     -- line 35?

5           A     Sure.

6                     MR. BUNKER:  Objection.  Form.

7  BY MR. JOHNSON:

8           Q     So let's say that the air mover is  
9     turned on, however that might be.  I don't think  
10    that's material to our discussion.

11          A     Not really material.

12          Q     No.  The fan is turned on.  What  
13    happens?

14          A     What happens when you turn the fan on?

15          Q     Yeah.

16          A     The fan turns on.  You start to get air  
17    movement.

18          Q     Describe it in the context of Figure 2.

19                     MR. BUNKER:  Objection.  Form.

20                     THE WITNESS:  Well, the patent  
21    describes it primarily as a pressurized mode,  
22    although it does say that the fan may be  
23    reversed, but in a pressurized mode that  
24    would generate fluid flow, fluid flow and  
25    intake.  It's not really shown on Figure 2

1           where the intake to the fan is, but then it  
2           would pass flow into that port on the tail  
3           end of the extension, and then the flow would  
4           go up and around that curve into the flat  
5           section shown in Figure 1.

6 BY MR. JOHNSON:

7           Q     And when you refer to the flat section,  
8           could you just give me a number?

9           A     Figure 1?

10          Q     Yes. You said "in the flat section of  
11          Figure 1." What is the flat section in Figure 1?

12          A     Well, figure 1 is the flat section. In  
13          other words, I'm saying in Figure 2 there's a  
14          curved section which extends down to the fan, but  
15          the curved section goes up, and then between the  
16          top and bottom cushions are the seating cushion  
17          and the back cushion, and then the flow enters the  
18          flat portion shown in Figure 1.

19          Q     And the flat portion, you mean the  
20          entire --

21          A     Yes.

22          Q     All right. So the fan is turned on?

23          A     Mm-hmm, yes.

24          Q     Is it fair to say that air then moves  
25          into that flat portion?



1           A     Yes. It moves from the tail section  
2 into the flat portion that's shown in Figure 1,  
3 yes.

4           Q     What happens inside that flat section?

5                     MR. BUNKER: Object to the form.

6                     THE WITNESS: The air flow is  
7 inside the spacer, which is denoted by 24 in  
8 Figure 1.

9 BY MR. JOHNSON:

10          Q     And it's just in there? What, what  
11 happens to the air?

12                     MR. BUNKER: Objection. Form.

13                     THE WITNESS: What happens to the  
14 air?

15 BY MR. JOHNSON:

16          Q     Yes.

17          A     In general I would characterize the  
18 spacer material as a relatively high flow  
19 resistance region. In other words, it's not a  
20 totally open area where there's minimal resistance  
21 to flow. The only resistance to flow is at the  
22 walls. With the spacer material, it's designed to  
23 facilitate air flow, but it's still a relatively  
24 high resistance region compared to just an open  
25 space.

1 Q Why is that so?

2 A Why is it?

3 Q Yes.

4 A Because it's not an open space. It's  
5 filled with material.

6 Q Why would you design it for the purposes  
7 that you just stated?

8 MR. BUNKER: Objection. Form.

9 THE WITNESS: Well, the spacer  
10 material really has two functions. It  
11 maintains that space, it supports that open  
12 space, and at the same time it permits air  
13 flow through that space, but of course, what  
14 you give up is you give up a little bit of  
15 resistance to that flow, but that's not  
16 necessarily a bad thing, because when you get  
17 that increased resistance, what it tends to  
18 do is cause the flow to spread out, to be  
19 more uniform over the entire domain.

20 BY MR. JOHNSON:

21 Q Now, if you reverse the fan so that  
22 instead of being a pressurized mode, what would  
23 you call it if it's not --

24 A Suction mode.

25 Q Suction mode. What happens to the air

1 if you were to put it into the suction mode?

2 MR. BUNKER: Objection. Form.

3 THE WITNESS: Well, it's still  
4 going to have the same effect no matter which  
5 way the air is going. That spacer material  
6 is what may be referred to as an isotropic  
7 material, and what we mean by that is that  
8 the flow is going to be the same in the  
9 spacer material whether it's in one  
10 direction, whatever direction it's in.  
11 Hopefully that's the way it's going to be.  
12 Not all, not all materials are like that.  
13 Some have preferential directions.

14 BY MR. JOHNSON:

15 Q Now, earlier we were talking about the  
16 air flow rate through a hole and calculating air  
17 flow rate through a hole.

18 Do you recall that?

19 A Yes.

20 Q So let's just go through, and if we talk  
21 about -- let's pick a hole, 46, for example, on  
22 Figure 2. Do you see 46?

23 A Yes.

24 Q If you're in the suction mode, how do  
25 you calculate that air flow rate through that

1 hole, specifically now?

2 MR. BUNKER: Objection. Form.

3 BY MR. JOHNSON:

4 Q In the suction mode, though.

5 MR. BUNKER: Objection. Form.

6 THE WITNESS: It's a bit different.

7 BY MR. JOHNSON:

8 Q A bit different from what?

9 A Well, if I was going to be -- if I was  
10 going to use a CFD method, as we were discussing  
11 earlier where I was using that in the pressure  
12 mode, one of the things I do is -- you're going  
13 from an inlet to an exit; in other words, the  
14 inlet in that case to the domain.

15 Now, the domain is the area over which  
16 I'm doing that calculation, so the domain for the  
17 CFD calculation would be from the tail, where the  
18 fan is mounted, all the way up through the flat  
19 section, up to the exits from the holes. Now, it  
20 could include a portion of the air above that hole  
21 region.

22 Q When you say "above that hole region,"  
23 what are you --

24 A Think of a layer of air sitting on top  
25 of the cushion.

1 Q Are you saying in Figure 2 above these  
2 holes?

3 A Yes.

4 Q 46, 45, 44, 43?

5 A Yes.

6 Q Please.

7 A Okay. So think of it as a layer of air  
8 sitting above the cushion. My domain could  
9 include that as well, and it might be beneficial  
10 to do that. Now, my domain -- CFD is pretty, has  
11 very wide ranging capabilities. I could include  
12 the whole cabin of the car if I wanted to. In  
13 other words, I could include the domain that goes  
14 through the cushion up through the holes and into  
15 the cabin.

16 The advantage to that is, the Achilles  
17 heel of CFD methods are exit boundary conditions,  
18 because what you're trying to do is you're trying  
19 to calculate the flow in this device, whatever it  
20 is. You have to apply inlet boundary conditions  
21 and exit or exit boundary conditions. It's  
22 required. We have to mathematically. It's  
23 required.

24 The weakest point of the analysis is the  
25 exit boundary conditions. So what you generally

1 try to do is apply a set of exit boundary  
2 conditions that will have the minimal effect on  
3 your results. So for that reason, you may want to  
4 take your domain out a little bit away from the  
5 exit of those holes and apply your boundary  
6 conditions out above there to minimize the effect  
7 on the flow rate through the exit.

8 Q So when you say "exit," what do you mean  
9 by exit as it --

10 A The plane of the hole. In other words,  
11 right there. You're talking about the flow rate  
12 through the hole. That's the flow rate right at  
13 the exit plane of that hole.

14 Q 46 right where the --

15 A Whatever. All of them.

16 Q And then what would these conditions be  
17 that you're talking about?

18 A What I said the exit boundary  
19 conditions, what I would use -- there's several  
20 different types of exit boundary conditions that  
21 you can use. One of those is an applied pressure.  
22 What I would use in this case with either the  
23 suction or the -- let me think about that a  
24 second. Yeah, with either the suction or the  
25 pressure condition, what I would apply at the

1 plane of these holes is an applied pressure.

2 That's mathematically sufficient for the problem.

3 What's the applied pressure?

4 Atmospheric. So that will have -- and the nice  
5 part about an applied pressure condition is it has  
6 a minimal effect; in other words, it would have a  
7 minimal effect on the calculated value of the flow  
8 rate at that point.

9 Q Is there an equation that you would use  
10 to calculate?

11 A P zero equals 14.7 . . .

12 THE REPORTER: Can you say that  
13 again, please?

14 THE WITNESS: Simply describe the  
15 atmospheric pressure at that point.

16 (Discussion was held off the  
17 record.)

18 BY MR. JOHNSON:

19 Q I just want to make sure we got the  
20 testimony right. I think you had a number that  
21 you mentioned, P zero times --

22 A 14.7 PSI. That's a standard value you  
23 take for atmospheric pressure.

24 Q And I had intended to ask, you know, was  
25 there a formula, you know, used to calculate the

1 air flow through, you know, these holes that we're  
2 talking about. You kind of shot pretty quick back  
3 with your answer, so I just wanted to make sure,  
4 you know, that my question got presented fully.

5 A Well, there are other techniques that  
6 you could use but not as accurate and really not  
7 as easy. The CFD approach is -- in this  
8 particular case it's not difficult. It's fairly  
9 easy, and it is used with, you know, HVAC  
10 departments at these automobile manufacturers, so  
11 that would be my choice.

12 Q So just back to the equation, I just  
13 want to make sure I understand the equation that  
14 you would use to calculate that air flow rate.  
15 What would that be again as you determined the air  
16 flow rate through, say, for example, orifice  
17 number 46?

18 A If I'm using the CFD technique, which  
19 we've been discussing, I am going to calculate  
20 simultaneously the air flow through all of those  
21 holes, each and every one of them, and my boundary  
22 condition at those holes is going to be -- well,  
23 let me explain a little bit more.

24 The variables that you're calculating  
25 are the three velocity components; in other words,



1 the fluid at each point is going to have a  
2 velocity in the X, Y and Z direction. The fourth  
3 variable is the static pressure.

4 Now, at the inlet or the exit, I have to  
5 prescribe values for all of those parameters, or I  
6 have to provide a boundary condition, a valid  
7 boundary condition for those parameters. One  
8 valid boundary condition is simply to specify the  
9 pressure, which is what I'm going to use at the  
10 exit here.

11 Q When you say "the exit," you're talking  
12 about the holes?

13 A The holes, yes.

14 Q Okay, and then when you say the inlet,  
15 you're talking about the hole as well?

16 A No, no. Oh, for the suction, for the  
17 suction case? The inlet would be the holes. For  
18 the pressure case, the inlet is down by the fan.  
19 The exit is up by the holes.

20 Q Let's just, just to make sure I  
21 understand this, let's talk about the pressurized  
22 mode where you're using the fan to blow --

23 A Yes.

24 Q -- the air into the chamber.

25 A Correct.

1 Q All right. So just clarify that for me  
2 so I understand that.

3 A Okay. In the pressurized mode, you have  
4 the flow enters the domain. Now, the domain is,  
5 again it's the tail going up to the flat portion  
6 here. The flow enters the domain at the fan  
7 location. It exits the domain at these hole  
8 locations.

9 Q That's the pressurized mode?

10 A That's the pressurized mode.

11 Q All right.

12 A In a suction mode, the flow is going to  
13 enter at the holes, and it's going to exit at the  
14 location of the fan.

15 Q All right. Now, what's the difference  
16 between air flow rate and pressure? Because you  
17 mentioned both, and I want to make sure --

18 A Yes.

19 Q -- I understand that from you, that  
20 we're on the same definitional --

21 A Pressure is just simply what it's --  
22 that's pressure.

23 Q Okay.

24 A The air rate is the flow rate of air,  
25 which can be either a mass flow rate, like

1 kilograms per second, or a volumetric flow rate,  
2 such as cubic feet per minute. Generally the  
3 volumetric flow rate is used in these types of  
4 applications.

5 Q Cubic feet per minute?

6 A Yeah.

7 Q So what would a standard operating  
8 condition be for, say, for example, fan 35?

9 MR. BUNKER: Objection. Form.

10 THE WITNESS: I don't know.

11 BY MR. JOHNSON:

12 Q Back to the pressurized mode.

13 A Okay.

14 Q The fan is turned on. Air is provided  
15 to the chamber.

16 A Yes.

17 Q Okay. Let's assume that you do your CFD  
18 analysis. Okay. If you look at Figure 2, and we  
19 discussed this in terms of the holes that we see  
20 there, 46, 45, 44, 43, 42.

21 A Yes.

22 Q Okay. What results do you expect from  
23 your analysis with respect to air flow rate and  
24 then also pressure?

25 MR. BUNKER: Objection. Form.

1 THE WITNESS: You mean at the hole  
2 location?

3 BY MR. JOHNSON:

4 Q Yeah, at those holes. So the fan is  
5 turned on, air is provided into the chamber, and  
6 then you run your, your analysis, you perform your  
7 analysis.

8 A Okay.

9 Q Okay. I just want to generally  
10 understand the pressure that exists at these holes  
11 and also the air flow rate.

12 MR. BUNKER: Objection. Form.

13 THE WITNESS: Okay.

14 BY MR. JOHNSON:

15 Q Does that make sense?

16 A Yes.

17 Q Please.

18 A It makes perfect sense.

19 If you recall, I said you had to have an  
20 exit boundary condition.

21 Q Yes.

22 A The exit is the hole location, and the  
23 boundary condition I'm going to use is a specified  
24 pressure, that the pressure is atmospheric. So to  
25 answer the first part of your question, the

1 pressure is simply going to be what I specify.  
2 It's going to be atmospheric pressure, which is  
3 what I expect in reality. It's going to be  
4 atmospheric pressure.

5           The flow, what we're actually -- the  
6 calculation results will yield the three velocity  
7 components at that, over that plane, in other  
8 words, the plane of the exit holes. From that --  
9 now, from that, from those velocity components at  
10 that location, I can calculate the mass flow rate,  
11 which is generally an auxiliary calculation that's  
12 done using the analysis results. It's not part of  
13 the analysis results. It's using those analysis  
14 results. You'll calculate some hand calculation  
15 of what the velocity or the flow rate is at each  
16 and every one of those holes, because we don't  
17 expect it to be the same.

18           Q     The flow rate would differ?

19           A     May. May not. Well, in actuality, it's  
20 like saying, you know, if two numbers have the  
21 same down to 15 digits, and there may be some  
22 variation, but what you'll get is the actual flow  
23 rate predicted, flow rate at each and every one of  
24 those holes. Hopefully, if your design is -- you  
25 know, if you're looking for your design to give

1 you a uniform flow rate, hopefully they'll come  
2 out fairly close.

3 Q With respect to the pressure, you  
4 mentioned atmospheric pressure. If we look at  
5 these holes, 46 through 42, we know the diameter  
6 differs between 46 through 42.

7 A That will be part of the model. The  
8 model will actually model the holes. The  
9 diameters will be different in the model.

10 Q So I'm just trying to understand what  
11 would be the pressure at each of the holes, given  
12 that they have different diameters.

13 A The fact that the diameters are  
14 different doesn't affect the pressure.

15 Q The pressure will remain the same  
16 throughout?

17 A Yes. Think about that. I mean how  
18 much -- well, there's going to be some variation,  
19 but it's negligible. Think about it. If you went  
20 through this entire room and measured pressure  
21 throughout this entire room, this might be --  
22 there might be some variation, but it's going to  
23 be pretty nearly constant. Same thing is going to  
24 be true of that seat.

25 Q But the flow rate as you look at hole

1 46, hole 45, 44, 43 and 42, my understanding of  
2 your testimony is that the flow rate will differ  
3 even though the pressure is generally the same.

4 Is that --

5 A It can, yes. Flow rate can vary.

6 MR. BUNKER: Objection to form. If  
7 you could pause just one second after he asks  
8 the question, that would be great.

9 BY MR. JOHNSON:

10 Q And why might it vary?

11 A It's just a fact that the flow is going  
12 to see some difference in -- it will vary  
13 according to the resistance that the flow -- well,  
14 not just the resistance. The acceleration and the  
15 resistance that the flow sees as it follows a path  
16 from the fan all the way through the device to the  
17 exit of the holes, associated with each path,  
18 there may be a different acceleration.

19 In other words, if you look at the flow  
20 as it goes from the fan to the exit, it can  
21 accelerate in speed and decelerate in speed at  
22 various portions of the geometry as it flows  
23 through it. That will contribute to a difference  
24 in the flow rate as it reaches the hole between  
25 one path or another.

1           Q     How does the diameter of the hole impact  
2 the flow rate?

3                   MR. BUNKER:  Objection.  Form.

4                   THE WITNESS:  Well, in general the  
5 larger diameter, the less resistance you're  
6 seeing is going to affect the flow rate.

7 BY MR. JOHNSON:

8           Q     And less resistance means -- in terms of  
9 pressure, less resistance means what?

10                  MR. BUNKER:  Objection.  Form.

11                  THE WITNESS:  More or less pressure  
12 drop.  You're mixing apples and oranges here,  
13 because the primary variables that you're  
14 interested in or that are relevant in this  
15 analysis are the three velocity components  
16 and the pressure.  They interact.  In  
17 general, when you increase velocity, you  
18 decrease pressure, and when you increase  
19 velocity, you decrease -- did I say that  
20 already?  They go the opposite.

21                  So as the flow field varies through  
22 this device, you know, it's going to interact  
23 and produce more or less pressure drop and  
24 thus more or less flow.



1 BY MR. JOHNSON:

2 Q So a larger diameter hole in comparison  
3 with the others could do either more or less?

4 MR. BUNKER: Objection. Form.

5 THE WITNESS: It's going to have an  
6 effect, but you can't simply say one way or  
7 the other, but what I would say in general,  
8 you're going to skew the flow higher with the  
9 larger holes, but if you look at -- let me  
10 just give you an example. Say you had all  
11 equal size holes here.

12 BY MR. JOHNSON:

13 Q 46 through had 42 are all the same size?

14 A Yes.

15 Q Okay.

16 A Do you expect to get all equal flow  
17 rates? No, because some have a shorter distance  
18 to go through, so you generally have, general --  
19 in other words, it's very difficult to try to  
20 predict in advance how it's going to go, because I  
21 can say that, okay, in general, if a fluid is  
22 following a much shorter path through this device,  
23 as it approaches the first hole it encounters,  
24 it's going to get a higher flow rate at that hole,  
25 but that's not always going to be true.

1 Q Under what conditions would it not be  
2 true?

3 MR. BUNKER: Objection. Form.

4 THE WITNESS: For some reason it  
5 encountered a higher resistance to that flow  
6 along that path to that first hole. This is  
7 not complicated.

8 BY MR. JOHNSON:

9 Q Some barrier, for example, in the space  
10 or material?

11 A Yeah. Maybe it had to make a sharp turn  
12 right in front of that hole. Maybe that first  
13 hole is behind an eddy that flows around, and  
14 there's a, like a flow in a river, behind a river  
15 rock. Maybe that hole is located behind a river  
16 rock, so to speak, so it's not going to get much  
17 flow.

18 Q Got it.

19 Let's reverse the mode. Let's go from a  
20 pressurized mode to what you called the suction  
21 mode.

22 A Yeah.

23 Q Okay, and you'd agree this '129  
24 describes bidirectional flow?

25 A Yes and no. Yes, it does say that the

1 fan may be reversed.

2 Q Okay. So let's reverse the fan, so  
3 instead of the pressurized mode which we've  
4 already talked about, let's go the reverse way and  
5 let's talk about it -- I don't know if the patent  
6 says suction mode, but let's talk about it using  
7 that term. Is that okay?

8 A Yes, that's fine. I know what you're  
9 talking about. We understand each other.

10 Q What happens, you know, with respect to  
11 the flow that we described and also the pressure  
12 that we were talking about at these holes 46, 45,  
13 44, 43, 42, as shown in Figure 2? I just want to  
14 go through that aspect of the system in that mode  
15 of suction.

16 MR. BUNKER: Objection. Form.

17 THE WITNESS: The most basic thing  
18 is the inlet and exits are now reversed. The  
19 inlet to the domain -- in the pressure mode,  
20 the exit of the domain was the holes. In the  
21 suction mode, the inlet to the domain is now  
22 the holes. The exit of the domain is now the  
23 fan location, whereas in the pressure mode,  
24 the exit to the domain was the holes, now  
25 it's at the fan, and conversely, the inlet is

1           now the holes in the suction mode, where, in  
2           the pressure mode, it was the fan, the fan  
3           location.

4   BY MR. JOHNSON:

5           Q     But in both modes, the air still comes  
6           from the fan?

7                     MR. BUNKER:  Objection.  Form.

8                     THE WITNESS:  Well, say that again.

9   BY MR. JOHNSON:

10          Q     In both modes, the air flow is generated  
11       as a result of the fan?

12          A     Oh, yes.  Yes.

13          Q     There's not something else that's  
14       going --

15          A     No, no, but the flow is in general in  
16       one direction in the pressurized mode and it's in  
17       the opposite direction in the suction mode.

18          Q     But the generation of that direction  
19       comes from that fan?

20          A     Correct.

21          Q     All right.  So I want to understand this  
22       pressure business and this flow rate business that  
23       we talked about in the pressurized mode as applied  
24       to this suction mode, all right, and so can you  
25       describe that for me?  At these hole locations,

1 46, 45, 44, 43 and 42, just generally, you know,  
2 what happens at those locations from an air flow  
3 standpoint and a flow rate standpoint when the  
4 system is in the suction mode?

5 MR. BUNKER: Objection. Form.

6 BY MR. JOHNSON:

7 Q Is it the same as, for example, as the  
8 pressure mode, pressurized mode, or does it  
9 differ, and if so, how does it differ?

10 MR. BUNKER: Same objection.

11 THE WITNESS: From the standpoint  
12 of the flow analysis, I'm going to use the  
13 same boundary condition.

14 BY MR. JOHNSON:

15 Q That CFD analysis?

16 A Yes. I want to use the pressure  
17 boundary condition, and I'm going to say it's  
18 atmospheric pressure. Whether it's in a pressure  
19 mode or a suction mode, I'm still going to say  
20 it's atmospheric pressure at the exit of those  
21 holes.

22 Now, keep in mind that in the pressure  
23 mode, as I discussed earlier, the fan supplies a  
24 higher pressure at the inlet, and as the flow goes  
25 through the device to the exit, the pressure is

1 going to drop to atmospheric. In the suction  
2 mode, it's going to go the other way.

3 So the high pressure is the atmospheric  
4 pressure at the inlet, but as the flow goes  
5 through the device, you're still going to get a  
6 decrease in pressure. You have to, because  
7 there's a resistance to that flow going through  
8 the device. When you get a resistance to flow,  
9 that manifests itself as a drop in pressure.

10 What the fan does is provides a pressure  
11 to overcome that drop in pressure. So in the  
12 positive flow direction, you get a high pressure  
13 at the fan, which will drop as you go through the  
14 device to atmospheric pressure at the exit.

15 In the suction mode, you're going to  
16 get -- you're still going to have a pressure drop  
17 as you go through the device, but now you start  
18 out from the high pressure being at the inlets,  
19 which are now the holes, and your pressure is  
20 going to drop. So at the inlet to the fan you're  
21 going to see the lowest pressure. So the fan is  
22 providing a reduced pressure, a suction to drive  
23 that flow, and as the flow exits the fan, it's  
24 going to go back to atmospheric again.

25 MR. BUNKER: We've been going for

1           about an hour. I don't want to interrupt the  
2           line of questions. What's a good spot to  
3           take another break?

4 BY MR. JOHNSON:

5           Q     Yeah, let me just follow up with a  
6           couple of questions here on the holes themselves,  
7           like the location on Figure 2, if you look right  
8           at that hole.

9           A     Mm-hmm.

10          Q     And I guess it depends -- correct me if  
11          I'm wrong. It depends on if you analyze the  
12          pressure on the top side of the hole versus on the  
13          bottom side of the hole. Is that fair to say that  
14          the pressure will differ --

15          A     Yeah.

16          Q     -- depending on if you're looking at it  
17          from the top side of the hole, meaning closer to  
18          the body of the occupant, versus the bottom side  
19          of the hole, meaning closer to the spacer  
20          material?

21          A     Uh-huh. What about it?

22          Q     I'm trying to understand the pressure  
23          value that you will be able to see --

24          A     Uh-huh.

25          Q     -- at those two different places.

1           A     Right.

2           Q     And I'm trying to, you know, understand  
3     what that would be. Generally what would the  
4     difference in the pressure be on the top side  
5     versus the bottom side?

6           A     I hate to do this to you. It depends on  
7     the geometry. It could be either higher or lower.

8                     There's two ways you can change  
9     pressure. Basically there's two ways you can  
10    change the pressure in that flow. You either  
11    accelerate or decelerate the flow, which will  
12    change the pressure.

13                    Think about your garden hose. Okay? As  
14    the flow is in the hose and it comes to the  
15    nozzle, what happens? It speeds up. It  
16    accelerates. You get a high speed flow that comes  
17    out of the nozzle, but what happens to the  
18    pressure? It decreases. Okay. Now say you stick  
19    a diffuser on the nozzle. What's a diffuser? A  
20    diffuser decelerates the flow, so it does like  
21    this. Opens up.

22           Q     Opens the area up?

23           A     Yeah, so as the flow goes through that  
24    diffuser, what does it do? The velocity  
25    decelerates, decreases in speed. What does the



1 pressure do? It goes up, but now look at the hose  
2 itself. It's a constant cross-sectional area, so  
3 as the flow goes through the hose, it doesn't  
4 accelerate or decelerate. It maintains a constant  
5 velocity. It has to. You can't accumulate fluid  
6 somewhere in that hose. It has to -- all the  
7 velocity has to -- what comes in has to go out,  
8 but what happens to the pressure? It decreases  
9 continuously along the direction of the flow.  
10 That's pressure drop. That's a resistance  
11 pressure drop.

12           So when you ask me the question what  
13 does the pressure do as you go through that hole,  
14 I don't know. It depends. Is there an area  
15 change such that the flow increases or decreases  
16 velocity, or is it a pure resistance?

17           If for some reason the velocity  
18 increased when it went through that hole -- let's  
19 take it the other way. If for some reason, as you  
20 go through the hole, the area opens up, so the  
21 velocity is going to decrease, what does that  
22 mean? The pressure is going to increase. What if  
23 it's all packed with that spacer material? What's  
24 going to happen then? Well, the flow velocity is  
25 probably not going to change much, but you're

1 going to see resistance where the pressure will  
2 decrease.

3 MR. JOHNSON: Thank you. We can  
4 break now.

5 MR. BUNKER: Okay.

6 THE VIDEOGRAPHER: This is the end  
7 of DVD 2. Off the record at 11:14.

8 (Whereupon, a short recess was  
9 taken.)

10 THE VIDEOGRAPHER: This is the  
11 beginning of DVD 3 in the deposition of  
12 Dr. Rice. On the record at 11:34.

13 BY MR. JOHNSON:

14 Q Dr. Rice, in your report and earlier in  
15 your testimony, actually, you had mentioned that  
16 you did construe the meaning of, quote, "spacer,"  
17 end quote.

18 A Correct.

19 Q How does that construction relate to the  
20 opinion that you render in your report?

21 A It didn't, really. I was just asked to  
22 provide a construction.

23 Q Why did you provide the construction?

24 A I was asked to.

25 Q But what issue is it relevant to?

1                   MR. BUNKER: I instruct the witness  
2 not to reveal any of our conversations that  
3 we had, because those are privileged, but to  
4 the extent it asks for facts or bases for  
5 your opinions, you're allowed to give those.

6                   THE WITNESS: Okay. I noticed that  
7 or I was shown the IGB construction for the  
8 term spacer, and I thought it was too broad  
9 myself, basically because it did not include  
10 any requirement for the spacer material being  
11 designed to facilitate fluid flow through the  
12 material.

13 BY MR. JOHNSON:

14           Q       But the construction that you provide in  
15 connection with the '129 is not relevant to the  
16 opinion that you provided in connection with the  
17 '129; is that accurate?

18                   MR. BUNKER: Objection. Form.

19                   THE WITNESS: No, I think that is  
20 the construction. I would take that to be  
21 what I would need to consider the plain and  
22 ordinary meaning of the term spacer as it's  
23 used throughout the '129 patent. I didn't  
24 think it really required any special  
25 construction, but I was asked to provide one.

1 BY MR. JOHNSON:

2 Q Let me rephrase my question. I'm trying  
3 to understand why you provided it.

4 A I was asked to.

5 Q Okay. So you were asked to provide it,  
6 and that's it?

7 A Yeah.

8 Q You don't have a reason outside of that?

9 MR. BUNKER: Objection. Form. You  
10 need to just pause one second after his  
11 questions.

12 THE WITNESS: I think the  
13 construction, the construction that I  
14 provided was absolutely consistent with my  
15 own interpretation of the term as I read the  
16 '129 spec, so it really didn't have any  
17 effect on my opinions. It didn't change how  
18 I construed the term myself in my head when I  
19 was reading the '129 spec.

20 BY MR. JOHNSON:

21 Q Does the construction provided here  
22 relate to a different patent that's been asserted  
23 in this case?

24 MR. BUNKER: Objection. Form.

25 THE WITNESS: No.

1 BY MR. JOHNSON:

2 Q So let me make sure I understand it. I  
3 get the testimony that you were asked to provide a  
4 construction, and I think your testimony is that  
5 the construction is irrelevant to your opinion on  
6 the '129 patent.

7 MR. BUNKER: Objection. Form.

8 THE WITNESS: Because of the fact  
9 that that is how -- my construction is  
10 exactly the same as I would have understood  
11 the term just from reading the spec. I  
12 didn't need to specifically point out how I  
13 viewed that, that term. To me that's exactly  
14 the same as how I viewed it from reading the  
15 specification, so in that sense, no, I didn't  
16 need a special construction.

17 BY MR. JOHNSON:

18 Q And you did it because you were just  
19 asked to do it?

20 A Yes.

21 Q But you didn't use it in your opinion at  
22 all?

23 MR. BUNKER: Objection. Form.

24 THE WITNESS: Well, I would say  
25 that that construction is. Because it's

1 exactly the same as my understanding of the  
2 term, that is what was used in my opinions.

3 BY MR. JOHNSON:

4 Q Show me where you did that. Where is it  
5 in your opinions outside of, outside of the  
6 section on claim construction of spacer, which is  
7 on page 12 and 13? I just want to make sure I  
8 understand this issue.

9 A Well, I think, you know, throughout my  
10 opinion, what's implicit to my opinion is that  
11 there is fluid flow through the spacer material,  
12 and I think that's relatively apparent from  
13 reading the specification is that the fluid -- the  
14 spacer material facilitates the flow of fluid  
15 through that material. It doesn't block it. It's  
16 not impermeable.

17 Q How does the construction, though,  
18 relate to your opinion concerning, you know, the  
19 arguments that you make as to the validity of the  
20 '129 patent claims in your opinion?

21 MR. BUNKER: Objection. Form.

22 THE WITNESS: You know, I'm not  
23 really sure how to answer that question.  
24 Part of my opinion rests on the fact of the  
25 direction of fluid flow through the device

1 and the fact that it's a pressure device, so  
2 therefore the fluid device provides fluid  
3 flow from the fan through the spacer  
4 material.

5 So implicit to that is my  
6 construction of spacer material, is that it's  
7 a material that, one, provides a support for  
8 the space but at the same time allows fluid  
9 flow through that material. So that's  
10 implicit to the opinions I'm opining.

11 BY MR. JOHNSON:

12 Q So in paragraph 36 you write, quote,  
13 "while not material to my other conclusions here,"  
14 end quote. This is on page 12, Exhibit 2, which  
15 is your report on the '129 patent.

16 Do you see that?

17 A Yes, I do.

18 Q What did you mean by that?

19 A Just what I said. My interpretation of  
20 the term spacer did not require a special  
21 construction. So in that sense it's not material  
22 to my conclusions, but the construction that I  
23 presented is the same as my plain and ordinary  
24 reading of the term as it's used in the '129  
25 patent. So in that sense it's not material to my

1 conclusions. It is material to my understanding  
2 of how the device operates.

3 Q How does that relate to the claims?

4 A Because I had to understand how the  
5 device operates to understand the claims.

6 Q If I could direct your attention,  
7 Dr. Rice, to Figure or Exhibit 1, and if we could  
8 go to column 4, lines 40 through 57.

9 A Okay.

10 Q And just for the record, I'm going to  
11 read it in.

12 "Figure 2 also illustrates in greater  
13 detail the aspect of the preferred embodiment of  
14 the present invention which varies the size of the  
15 holes 22 as the distance from the air mover  
16 increases. In this figure, three openings are  
17 provided in the bag extending up to bracket [sic]  
18 32 with holes 37, 38 and 39 becoming gradually  
19 larger as the distance from fan 35 increases. A  
20 linear portion [sic] is provided for these holes,  
21 as that pattern has been found to be acceptable  
22 for the heating or cooling of an occupant. The  
23 bag located on the cushion 34 also includes a  
24 pattern of openings 22, this time the openings  
25 being provided in a U shape to rest under the legs



1 and seat of the occupant. The opening 42 at the  
2 bottom of the U is the smallest, and sets of  
3 openings 43, 44, 45 and 46 extend in a spaced  
4 relationship toward the front of the bag and grow  
5 gradually larger. This size and arrangement of  
6 the air holes, with the smaller holes being near  
7 the air mover, contributes to a more uniform flow  
8 of air from the air mover, in this case fan 35."

9 Do you understand that?

10 MR. BUNKER: I don't think it's  
11 critical. There were a couple of errors in  
12 the reading of that, but I don't think it's  
13 critical. I just want to note that for the  
14 record.

15 MR. JOHNSON: If you just want to  
16 make the corrections, that's fine.

17 THE WITNESS: Yeah, you said it's a  
18 "linear portion," and it's a "linear  
19 pattern."

20 BY MR. JOHNSON:

21 Q Anything else?

22 MR. BUNKER: Instead of "bracket  
23 32," you should state "backrest 32."

24 BY MR. JOHNSON:

25 Q Is that okay?

1 A Fine by me.

2 Q Do you understand this --

3 A I think so.

4 Q -- section that I read?

5 A I think so.

6 Q What does that mean?

7 A The holes get bigger as you move further  
8 from the fan.

9 Q What's that mean?

10 MR. BUNKER: Objection. Form.

11 THE WITNESS: I think it's clear  
12 what it means.

13 BY MR. JOHNSON:

14 Q Enlighten me.

15 MR. BUNKER: Objection. Form.

16 THE WITNESS: The holes get bigger  
17 as the distance from the fan increases.

18 BY MR. JOHNSON:

19 Q Why?

20 MR. BUNKER: Objection. Form.

21 THE WITNESS: Supposedly,  
22 supposedly to make the flow more uniform.

23 BY MR. JOHNSON:

24 Q Now, you used the term "supposedly."

25 Why did you say "supposedly"?

1           A       Because I'm not 100 percent convinced  
2   that it works as advertised.

3           Q       And what do you mean by that? Explain  
4   that.

5                   MR. BUNKER: Objection. Form.

6                   THE WITNESS: Well, for example, it  
7   also explains that the U-shaped pattern of  
8   the holes facilitates air flow over the  
9   occupant. While the occupant is sitting on  
10   the hole, that may facilitate blocking the  
11   flow.

12                  So I think in general it's probably  
13   a good approach, but I'm just not -- I would  
14   like to see some measurements to see how well  
15   it works.

16   BY MR. JOHNSON:

17           Q       So the passage that I read, you don't  
18   necessarily agree with?

19                   MR. BUNKER: Objection. Form.

20                   THE WITNESS: No, I didn't say  
21   that. I said I'm not sure how well it works.  
22   I would have to do some measurements or a CFD  
23   calculation to see how well it works.

24   BY MR. JOHNSON:

25           Q       How would the calculations help you?

1 MR. BUNKER: Objection. Form.

2 THE WITNESS: They would give me  
3 the air flow at each of the holes.

4 BY MR. JOHNSON:

5 Q You said, "I think in general it's  
6 probably a good approach, but I'm just not -- I  
7 would like to see some measurements to see how  
8 well it works."

9 A Yes.

10 Q So you don't know if it's a good  
11 approach?

12 MR. BUNKER: Objection. Form.

13 THE WITNESS: I think it is.  
14 Theoretically it sounds good.

15 BY MR. JOHNSON:

16 Q Why theoretically does it sound good to  
17 you?

18 MR. BUNKER: Objection. Form.

19 THE WITNESS: It's just my  
20 intuition based on all my experience with  
21 fluid mechanics and HVAC systems, including  
22 automotive HVAC systems, that it should work.

23 BY MR. JOHNSON:

24 Q What do you mean "it should work"?

25 A As I explained earlier, you know, fluid

1 flow is a very complicated process, and in  
2 something like this, which is a fairly complex  
3 geometry, you could have something in there that  
4 could screw up the whole thing.

5 For example, maybe you had a back  
6 support or a support structure for the cushion  
7 itself that pinched off a portion of that, of that  
8 mat. That would change the whole ball game.  
9 That's why I like CFD. You can actually simulate  
10 what's there and see how it's going to work.

11 Q How much work would it be for you to  
12 perform a CFD on a seating system like the one  
13 we're talking about today?

14 A Like this? A couple of days.

15 Q Just generally describe the steps. How  
16 would you -- what would you do? You'd get the  
17 seat, and then what would you do?

18 A Build a model of it, but --

19 Q If you were given the model -- if you  
20 were given the physical seat for the whole thing,  
21 like the actual seat, what would you do with that  
22 seat? Let's assume that you know the fan is there  
23 and it works, and you can turn it off and on.

24 A Well, generally these days the way you  
25 build these models is you use -- I don't want to

1 call it a CAD package, but it's similar to a CAD  
2 package, but it allows you to build a three-  
3 dimensional solid; in other words, not a frame,  
4 but a full three-dimensional model of the entire  
5 device, and those are used extensively in the  
6 automotive industry these days. So they probably  
7 got those sort of models for everything on the  
8 car.

9           So it might be possible, if they wanted  
10 me to do an analysis of this or if it was desired  
11 to do an analysis of this, that the three-  
12 dimensional model would already exist. Somebody  
13 has already done that. That's just part of the  
14 design process in the overall system. So what I  
15 would do is basically use the same software, which  
16 could be something like AutoCAD or Solidworks or  
17 CATIA, and you then -- your CFD model could  
18 actually read that same model. So if the designer  
19 had set up that model just in doing the design of  
20 the seat, he would pass that over to you, and you  
21 can use that same model in your CFD analysis.

22           So the steps are, first of all, you  
23 apply a mesh, what's called a computational mesh  
24 to that model, which simply divides it up into  
25 node points, and what you do is you calculate the

1 value of the quantities you're interested in at  
2 each those node points throughout the model, and  
3 there could be hundreds of thousands to millions  
4 of node points in one particular model.

5 So then you set it up, generate the  
6 mesh, which in most of the packages these days,  
7 that's automatic. You just say mesh this thing,  
8 and it generates the mesh. Then you apply the  
9 boundary conditions that I discussed earlier. You  
10 run an analysis and take a look at the results,  
11 see what you got.

12 Oh, and there's post processing steps.  
13 In other words, you've got the analysis there, you  
14 got the results for the analysis. Then you go  
15 through various post processing steps, which means  
16 steps after the analysis, and that could include,  
17 for example, generating graphical displays of what  
18 the flow looks like or calculating the flow rate  
19 at each and every one of the holes.

20 Q The, the disclosure here about the size  
21 of the air holes, the variable size of the air  
22 holes --

23 A Yes.

24 Q -- with the smaller holes being closer  
25 to the air mover?

1 A Yes.

2 Q And this point on column 4, line 55,  
3 about it contributing to a more uniform flow of  
4 air from the air mover?

5 A Uh-huh, yes.

6 Q Fan 35, I think, which -- yeah, we can  
7 see that fan 35 in Figure 2 --

8 A Yes.

9 Q -- from before.

10 A Yes.

11 Q So, you know, you've testified that  
12 you'd like to see some testing as to how well that  
13 plays out, that particular statement.

14 A Well, the other thing the testing might  
15 do for you was help you to dictate the relative  
16 sizes of the holes.

17 Q As a general principle, you stated that  
18 it sounds like a good idea.

19 A Yeah.

20 Q Okay, the variable hole setup here,  
21 right?

22 A Yes.

23 Q Okay. Does it, does it matter if you're  
24 in the what is called the pressurized mode versus  
25 the suction mode?



1 MR. BUNKER: Objection. Form.

2 BY MR. JOHNSON:

3 Q Your view on the approach?

4 MR. BUNKER: Objection. Form.

5 THE WITNESS: My view, it could,  
6 yes.

7 BY MR. JOHNSON:

8 Q Okay. How so?

9 A Again, that's extremely difficult to  
10 say, oh, well, it will do it like this or it will  
11 do it like that. Again, it's a very complicated  
12 process, and it's hard to -- fluid flow is  
13 probably one of the most complicated things that  
14 mechanical engineers deal with, and it's very  
15 difficult to sort of guesstimate how the fluid  
16 flow in a fairly complex geometry is going to  
17 behave.

18 Q So the geometry shown on Figure 2, do  
19 you consider that to be a complex geometry?

20 A Yes.

21 MR. BUNKER: Objection. Form.

22 THE WITNESS: Yes.

23 BY MR. JOHNSON:

24 Q Let me make sure I get this, I  
25 understand you, Dr. Rice.

1           You mentioned that this variable hole  
2 design, the general perspective sounds like a good  
3 approach.

4           A     Yes, but let me -- well, let me just  
5 give you another example.

6           You've got this spacer material, and in  
7 general a spacer material like that will tend to  
8 produce a uniform flow.

9           Q     So this is what results in your  
10 questioning of whether the variable hole size is  
11 actually --

12          A     I think the variable hole size is a good  
13 idea, but again this is a very complicated system.  
14 The spacer mesh itself may do a large -- may serve  
15 in a large part to producing a uniform flow.

16          Q     So you might not need variable --

17          A     I've used spacer materials like that  
18 myself.

19                   MR. BUNKER: Dr. Rice, if you could  
20 just pause for just one second after he  
21 finishes his questions, just to make sure he  
22 gets it all in there, and then I'll have time  
23 to object if I need to. Appreciate that.

24 BY MR. JOHNSON:

25          Q     The variable hole design, as we're

1 discussing, in your view, might not be necessary  
2 because of the spacer material?

3 MR. BUNKER: Objection. Form.

4 THE WITNESS: Again, I think it  
5 sounds like a good idea, but I wouldn't want  
6 to do -- one of the other things I would get  
7 out of the CFD simulation would be the flow  
8 distribution coming out of the spacer  
9 material itself.

10 BY MR. JOHNSON:

11 Q All right, but the variable hole design  
12 sounds like a good idea to you?

13 A Yes.

14 Q And I'm assuming that it's a good idea  
15 in either the pressure mode or the suction mode.

16 MR. BUNKER: Objection. Form.

17 BY MR. JOHNSON:

18 Q Is that fair to say?

19 MR. BUNKER: Objection. Form.

20 THE WITNESS: I think so, but  
21 there's a difference of opinion on that.  
22 Some of the other prior art uses suction  
23 modes, too, and they say they achieve a  
24 uniform flow with that distribution.

1 BY MR. JOHNSON:

2 Q I'm just asking the question as it  
3 relates to this passage here. We'll get to that.  
4 Obviously we will discuss -- I think you're  
5 referencing the Wyon prior art now.

6 A Yes.

7 Q As we discussed this '129 patent, you  
8 said that, you know, it sounds like a good idea to  
9 use a variable hole design.

10 A Yes.

11 Q And so I'm just, I just want to make  
12 sure I understand that, you know, your view, which  
13 is "sounds like a good idea," applies, the same  
14 principle would apply to the pressure mode and the  
15 suction mode.

16 MR. BUNKER: Objection. Form.

17 BY MR. JOHNSON:

18 Q Just the general statement that, you  
19 know, "sounds like a good idea." That's what I'm  
20 looking to make sure I understand.

21 MR. BUNKER: Same objection.

22 BY MR. JOHNSON:

23 Q Does that make sense?

24 MR. BUNKER: Same objection.

25 THE WITNESS: Yes.

1 BY MR. JOHNSON:

2 Q Okay, thanks. I'm not sure if you were  
3 saying yes, it doesn't make sense or yes, this,  
4 this principle of sounding like a good idea would  
5 apply to both the pressurized mode and the suction  
6 mode. Can you clarify?

7 MR. BUNKER: Objection. Form.

8 THE WITNESS: Yes, that's correct.

9 BY MR. JOHNSON:

10 Q To make sure it's clear for the record,  
11 what are you saying yes to?

12 A That I think it sounds like a good idea  
13 for both the pressure mode and the suction mode.

14 Q All right. Just one further question on  
15 this. Why, why would it be a good idea in your  
16 view for both suction and pressure mode? Again,  
17 I'm asking a general question.

18 MR. BUNKER: Objection. Form.

19 THE WITNESS: Well, in general  
20 you're talking about really the same effects.  
21 In other words, as I mentioned earlier, when  
22 you're looking at fluid flow, it's a  
23 path-dependent process. In other words, you  
24 have a certain path that you're traveling  
25 along from, in one case, from the fan to the

hole, and in the other case from the hole to the fan. Is that going to be the same path? Pretty much.

So if you're talking about the path effects where it's -- and that shorter path has the smaller hole versus the longer path which has the larger hole, it's going to be the same. It's going to be essentially the same flow, pressure and suction side.

BY MR. JOHNSON:

Q And then how does the concept of resistance play into your testimony right now?

MR. BUNKER: Objection. Form.

THE WITNESS: In other words, both cases would have the same path and thus the same resistance. Resistance acts along the path.

BY MR. JOHNSON:

Q But the hole size has an impact on resistance; you would agree with that, right?

A No.

Q It doesn't?

A No.

Q So what does the hole size do for us here?

A In other words, as you go through the hole size, there's a -- if you have a certain velocity, the size of the hole is going to dictate the size of the or the total flow rate. Bigger hole, bigger flow rate.

Q Smaller hole?

A Lower flow rate.

MR. JOHNSON: All right. I'm going to mark as Exhibit 4 the Wyon prior art reference, which is the '220 patent.

(Exhibit 4 was marked for identification.)

BY MR. JOHNSON:

Q You're familiar with this reference, Exhibit 4?

A Yes, I am.

Q And you relied upon it in forming your opinions?

A Yes, I did.

Q Earlier you mentioned that this patent talks in terms of a suction mode; is that fair to say?

A It does, yes.

Q And if I could direct your attention to Figure 2 of the patent.

1 A Yes.

2 Q Just, you know, to get us going here,  
3 can you explain what we see here on Figure 2?

4 A Well, Figure 2 shows, well, an overall  
5 assembly for the seat, with the ventilation holes  
6 7, and then it shows an external pipe or tube that  
7 feeds down to what they call the, in this case the  
8 suction air mover. I think they call it a  
9 turbine. So in this case the flow enters at the  
10 hole 7 and exits the flow or exits the domain  
11 through the tubes and then out to the turbine 13.

12 Q If I direct you back to the '129 patent,  
13 which is Exhibit 1, and if you go to Figure 2, if  
14 you could do a side-by-side of Figure 2 of the  
15 '129 and Figure 2 of the '220, the Wyon patent,  
16 that would be great. I'll ask you a couple  
17 questions.

18 A Okay. Figure 2 of the Wyon?

19 Q Yeah.

20 A Okay. As I was just discussing, in  
21 Wyon -- now, both Wyon and the '129 are somewhat  
22 the same in that Wyon describes the suction flow  
23 where the flow enters the ventilation holes 7 and  
24 then exits the turbine 13. It sort of describes  
25 that as the primary, and that's the emphasis in



1 the Wyon patent. In other words, they emphasize  
2 the suction flow, but they do mention that it  
3 could be reversed, but virtually the entire  
4 specification for the most part deals with suction  
5 flow.

6 The '129, on the other hand, emphasizes  
7 the pressure flow where the flow enters the fan  
8 35, flows up through the tongue and then through  
9 the flat portion and out through the holes 42 to  
10 46 and 37 to 39. So the flow in the '129  
11 primarily exits those ventilation holes, wherein  
12 the '220 it enters the ventilation holes.

13 Q So for the '129 -- Exhibit 1 primarily  
14 describes this pressure mode?

15 A Correct.

16 Q But also you can reverse that?

17 A It mentions that the flow could be  
18 reversed, but for the asserted -- for the claims  
19 under discussion here, 1 through 7, they all deal  
20 with pressure mode.

21 Q All right, and then when we look at  
22 Wyon, it's basically the reverse. It's primarily  
23 focused on, I think you said emphasized --

24 A Suction mode.

25 Q Suction, but that it also has this

1 concept of the reverse?

2 MR. BUNKER: Objection. Form.

3 THE WITNESS: It mentions that the  
4 flow may be reversed.

5 BY MR. JOHNSON:

6 Q And so what does that mean when you say  
7 the flow may be reversed?

8 A That the Wyon device would operate in a  
9 pressure mode where the flow is exiting rather  
10 than entering the holes 7 shown in Figure 2.

11 Q So why would these devices permit this  
12 bidirectional flow?

13 MR. BUNKER: Objection. Form.

14 THE WITNESS: Well, in the case of  
15 Wyon, I don't think there's a real reason to,  
16 to even mention the pressure flow.

17 BY MR. JOHNSON:

18 Q All right, so why in the '129 would you  
19 mention suction mode?

20 A I just think they're mentioning it in  
21 the fact to say that it's possible that the flow  
22 could be reversed.

23 Q So in both of these disclosures you can  
24 have bidirectional flow?

25 MR. BUNKER: Objection. Form.

1 THE WITNESS: I wouldn't -- no, I  
2 wouldn't agree with that statement.

3 BY MR. JOHNSON:

4 Q You wouldn't agree with that?

5 A No.

6 Q So you don't agree with, you don't agree  
7 that the '129 you could have bidirectional flow,  
8 and you don't agree that the '220 you could have  
9 bidirectional flow?

10 MR. BUNKER: Objection. Form.

11 THE WITNESS: What I think in  
12 particular is that with the Wyon patent, you  
13 would not -- if you follow all of the  
14 teachings of the Wyon patent, you would not  
15 want to have to reverse that to a pressurized  
16 flow.

17 BY MR. JOHNSON:

18 Q But you could do it?

19 A You could do it, but you wouldn't want  
20 to. The Wyon patent teaches that the suction flow  
21 is of extreme benefit.

22 Q Extreme?

23 A Yeah.

24 Q And it would not be a benefit to reverse  
25 it?

1 MR. BUNKER: Objection. Form.

2 THE WITNESS: No.

3 BY MR. JOHNSON:

4 Q Why not?

5 A Well, if you go through the Wyon patent,  
6 they claim that you get a much more effective  
7 ventilation system because of the suction flow.  
8 So you certainly wouldn't want to reverse it and  
9 lose those, lose all those benefits.

10 Q But it does teach that you could reverse  
11 it?

12 MR. BUNKER: Objection. Form.

13 THE WITNESS: It states that you  
14 could reverse it. It certainly does not  
15 teach that the reverse direction would be as  
16 beneficial as the suction direction.

17 BY MR. JOHNSON:

18 Q You wouldn't get the extreme benefit  
19 that you talked about earlier?

20 A You wouldn't get any of the benefits  
21 that they teach in Wyon that you obtain by having  
22 the suction flow.

23 Q Okay, and did you perform any testing to  
24 confirm your conclusion?

25 A No.

1 Q And what actually are you relying upon  
2 for your conclusion that you just made that you  
3 would not get the benefit?

4 A I'm relying on the Wyon patent.

5 Q Let's go through it and explain to me  
6 where it says that if you reversed it, you would  
7 not get any benefit.

8 MR. BUNKER: Objection. Form.

9 THE WITNESS: That's not what it  
10 teaches. What it teaches is the benefits  
11 that you gain from having suction flow. It  
12 doesn't discuss at all how the pressure flow  
13 would perform.

14 BY MR. JOHNSON:

15 Q Is it your testimony that if you  
16 reversed Wyon to include pressure mode rather than  
17 the suction mode, that you would not get any of  
18 the benefits that are described in the Wyon  
19 patent?

20 MR. BUNKER: Objection. Form.

21 THE WITNESS: That's correct.

22 BY MR. JOHNSON:

23 Q And what is the bases in the patent  
24 itself for your conclusion?

25 A If you look to my report at paragraph

1 52, you'll see where I describe, describe the  
2 benefits Wyon claims are due to the suction mode  
3 operation.

4 Q Does anywhere in Wyon does it say that  
5 the reverse would not be beneficial?

6 MR. BUNKER: Objection. Form.

7 THE WITNESS: If you read the  
8 description I provided there just after 52,  
9 if you reverse the flow, you would lose those  
10 benefits.

11 BY MR. JOHNSON:

12 Q But my question is: Is there anything  
13 in the patent itself that says what you have  
14 concluded?

15 MR. BUNKER: Objection. Form.

16 THE WITNESS: Yes. I point you to  
17 that quoted section.

18 BY MR. JOHNSON:

19 Q Read it into the record then.

20 A Okay. "According to Wyon," quote --

21 Q Where are we in the patent?

22 A Oh. Let me switch over to the patent.

23 Q Yeah, let's do it with respect to the  
24 patent. I think you have the citations in the  
25 report.

1           A       Yes, I do. It's column 1, line 59.

2    Actually, that looks like column 1, line 61,  
3    through column 2, line 9.

4                    Q                    Go ahead.

5           A       "A device according to the invention  
6 makes it possible to suck air through those  
7 support surfaces of the chair with which the body  
8 of a person is sitting in a chair would be in  
9 contact, by which means sucked air will pass close  
10 to the contact surfaces of the seated person's  
11 body, thus cooling them in a comfortable way and  
12 keeping them dry. It has been found that in the  
13 device according to the invention the heat flow  
14 from those parts of the body forming the contact  
15 surfaces with the chair may be just as high as if  
16 the person were freely standing up, the value of  
17 the heat flow being naturally dependent on the  
18 internal construction of the device and on the  
19 suction effect utilized of the suction device in  
20 use. Furthermore, the support surfaces of the  
21 device are capable of absorbing the sweat  
22 produced, if any, and moisture that may be  
23 produced between the body and the support  
24 surfaces, thus maintaining the support surfaces  
25 dry and cool despite this due to the air stream

1 passing."

2 Q So could you just direct me to where it  
3 says that you couldn't use a pressure mode in that  
4 passage?

5 A Everything in that passage is contingent  
6 upon the device operating in a suction mode.

7 Q Right, but where does it say that you  
8 could not operate in a pressure mode? That's all  
9 I'm asking. Where in the patent does it say you  
10 could not operate it in a pressure mode?

11 MR. BUNKER: Objection. Form.  
12 You can answer.

13 THE WITNESS: I don't think it says  
14 anywhere in the patent that you cannot --  
15 that says explicitly that you cannot operate  
16 the device in a pressure mode.

17 (Discussion was held off the  
18 record.)

19 THE VIDEOGRAPHER: Off the record  
20 at 12:14.

21 (Whereupon, the lunch recess was  
22 taken.)

23 THE VIDEOGRAPHER: This is -- back  
24 on record at 1:04.

25



1 BY MR. JOHNSON:

2 Q Good afternoon.

3 A Good afternoon.

4 Q Before lunch, Dr. Rice, you made a  
5 statement that -- I think this is fair to say that  
6 you said that all claims at issue here deal with  
7 the pressure mode.

8 Is that an accurate representation?

9 A Yes.

10 Q And if you could just elaborate on what  
11 you meant when you said that, you know, the claims  
12 at issue all deal with the pressure mode.

13 A If you go to the patent, to the claims,  
14 we're concerned with claims 1 through 7 which all  
15 depend from claim 1. And claim 1 includes the  
16 limitation that it has "a generally enclosed  
17 chamber formed by a top portion and an air  
18 permeable bottom portion and including the opening  
19 for receiving air from the air mover."

20 And that phrase "receiving air from the  
21 air mover" indicates that it's a pressurized  
22 system.

23 Q Earlier you testified that the only  
24 claim construction that you provided an opinion on  
25 was with respect to the term "spacer." Is that

1 still to be the case?

2 A Yes.

3 Q Now, with respect to this phrase "an  
4 opening for receiving air from the air mover,"  
5 which you just mentioned from claim 1.

6 A Yes.

7 Q Is it your position that claim 1  
8 excludes suction?

9 A Yes.

10 Q So claim 1 excludes the suction mode --  
11 I just want to make sure I understand this -- and  
12 only includes what we've been talking as the  
13 pressure mode?

14 MR. BUNKER: Objection to form.

15 THE WITNESS: That's correct.

16 BY MR. JOHNSON:

17 Q Now, does the specification support that  
18 position?

19 A Yes.

20 Q Could you show me where in the  
21 specification claim 1 would exclude the suction  
22 mode?

23 MR. BUNKER: Objection to form.

24 THE WITNESS: The bulk of the  
25 specification talks about a system operating

1 in a pressure mode, and that's reinforced by  
2 the fact that claim 1 really only applies to  
3 a pressure mode.

4 BY MR. JOHNSON:

5 Q But I think earlier you testified that  
6 it could apply to suction mode?

7 MR. BUNKER: Objection. Form.

8 THE WITNESS: Claim 1?

9 BY MR. JOHNSON:

10 Q The system.

11 A No.

12 MR. BUNKER: Objection. Form.

13 THE WITNESS: What I said was the  
14 specification mentions that the fan could be  
15 reversed. It really doesn't discuss in any  
16 more detail than that anything other than the  
17 pressure mode.

18 BY MR. JOHNSON:

19 Q Your understanding of claim 1, however,  
20 is that it excludes the suction mode?

21 MR. BUNKER: Objection. Form.

22 THE WITNESS: That's correct.

23 BY MR. JOHNSON:

24 Q But you do agree that the specification  
25 mentions that the system can operate in the

1 suction mode? You don't dispute that?

2 A I would to a certain extent. The  
3 specification does not discuss operating the  
4 system in a pressure mode. It does mention that  
5 you could reverse the fan, but that's all it says  
6 about that.

7 Q Right, so the specification doesn't say  
8 that claim 1 is limited to the pressure mode?

9 MR. BUNKER: Objection to form.

10 THE WITNESS: The claim does.

11 BY MR. JOHNSON:

12 Q The specification.

13 MR. BUNKER: Objection. Form.

14 BY MR. JOHNSON:

15 Q I'm talking about the specification  
16 right now, not the claim.

17 MR. BUNKER: Objection. Form.

18 THE WITNESS: That's correct. The  
19 specification does not specifically state  
20 that claim 1 is limited to the suction mode.  
21 Now, by "specification" you're excluding the  
22 claims?

23 BY MR. JOHNSON:

24 Q Yes.

25 A Okay.

1 Q Outside of the claims. Is there  
2 anything --

3 A Because it's my understanding the  
4 specification includes the claims.

5 Q Okay. So we'll exclude the claims as  
6 part of the specification. If it's confusing to  
7 you, what I could do is I could call -- well, I'll  
8 just say everything outside of the claims.

9 A Okay.

10 Q Some people call it the detailed  
11 description. You probably realize some people  
12 refer to it generally as the specification.

13 Do you know why the specification,  
14 rather the non -- the detailed description --

15 A Let me just say I understand, when you  
16 use the term "specification," you're meaning  
17 everything except the claims.

18 Q Yes. Why does it talk in terms of  
19 bidirectionality?

20 MR. BUNKER: Objection to form.

21 BY MR. JOHNSON:

22 Q Your understanding of the patent?

23 MR. BUNKER: Objection to form.

24 THE WITNESS: I don't really know.

25 They just simply mention that the fan could

1           be reversed, but they don't mention anything  
2           about the effect of that or what it might be.

3   BY MR. JOHNSON:

4           Q     Are you familiar with what section 112  
5   paragraph 6 is in the Patent Act?

6           A     Not specifically.

7           Q     Do you know what a means-plus-function  
8   claim element is?

9           A     Oh, sure.

10          Q     What is a means-plus-function claim  
11   element?

12          A     Well, you defined a means for performing  
13   a specific function, but the claim does not  
14   specifically define the structure that performs  
15   that function.

16          Q     Now, we're talking about, I believe --  
17   and correct me if I'm wrong -- an opening for  
18   receiving air from the air mover; is that  
19   accurate? I think that's what you said earlier,  
20   quote, "an opening for receiving air from the air  
21   mover," end quote.

22          A     Yes.

23          Q     Where is the opening shown in the  
24   figures?

25                   MR. BUNKER: Objection to form.

1 THE WITNESS: I believe that's item

2 49 in Figure 3.

3 BY MR. JOHNSON:

4 Q Item what?

5 A 49. And it's also discussed in

6 paragraph 5, lines 21 through 25. I'm sorry.

7 Column 5, lines 21 to 25.

8 Q This language, "an opening for receiving

9 air from the air mover," would you agree that for

10 receiving air from the air mover, that that's

11 functional language?

12 MR. BUNKER: Objection to form.

13 THE WITNESS: Yes, that describes

14 the function of the opening, yes, but it

15 also -- you know, the claim also defines the

16 structure.

17 BY MR. JOHNSON:

18 Q And what is it you believe is the

19 structure?

20 A The opening.

21 Q And the opening is illustrated as

22 element 49 in Figure 3, right?

23 A That's correct.

24 Q Now, in Figure 3 what is element 50?

25 A You would think it's the fan, but it's

1 not. Well, if you look down just below that line  
2 25 of paragraph 5 -- well, you could determine --  
3 it says, "Direction of air movement can be  
4 controlled by" -- "direction of air movement can  
5 be" -- lost my place -- "controlled by a separate  
6 controller coupled to the air mover 50 or by using  
7 the fan speed and temperature controls of the  
8 vehicle."

9 So 50 is -- it appears to be the fan,  
10 but they use a different designation in another  
11 place for the fan. They called it the fan 35. So  
12 this, they're calling this an air mover 50.

13 Q You would agree that air mover would  
14 include a fan?

15 A Yes.

16 Q Okay. In this column 5, lines 29  
17 through 34, it says, "If a fan 50 is used which is  
18 not directly coupled to the vehicle's air  
19 conditioning system, it is preferred that the fan  
20 be reversible to operate in a pressurizing or  
21 suction mode and that the fan be multispeed,  
22 having at least low, medium and high settings."

23 A What's the question?

24 Q The question is: Why would it be  
25 preferred to permit the fan to operate in a



1 reversible mode?

2 A I would assume whoever --

3 MR. BUNKER: Objection to form.

4 THE WITNESS: I would assume  
5 whoever drafted the patent was looking to  
6 just simply broaden the coverage to some  
7 extent, but the specification really focuses  
8 on the use of the patent in a pressurized  
9 mode, and as I said earlier, it does mention  
10 that the fan could be reversible, but claims  
11 1 through 7 only deal with the pressurized  
12 mode.

13 BY MR. JOHNSON:

14 Q But you don't dispute that the language  
15 that we just read into the record says that it's  
16 actually preferred that the fan be reversible?

17 MR. BUNKER: Objection to form.

18 THE WITNESS: I don't disagree with  
19 what it says, no.

20 BY MR. JOHNSON:

21 Q Your view is that, though, claims 1  
22 through 7 exclude the reversible mode of  
23 operation?

24 MR. BUNKER: Objection to form.

25 THE WITNESS: That's correct.

1 BY MR. JOHNSON:

2 Q Is there anything in the specification  
3 that you're relying upon to support your view that  
4 claim 1 and its depending claims exclude the  
5 reversible functionality of the fan?

6 A Yes.

7 Q What is that?

8 A The bulk of the specification describes  
9 the operation of the device in a pressurized mode.  
10 There's no description other than this little  
11 section that you're talking about where they say  
12 the fan may be reversible. There's no description  
13 in the entire rest of the specification other than  
14 that which makes any mention of a suction mode.

15 Q So my, my question is whether there's  
16 something in the prosecution history that supports  
17 your position that would exclude a preferred mode  
18 of operation as described in the spec at lines 30  
19 through 34. So when I say "prosecution history,"  
20 I'm now talking about the file wrapper, which I  
21 believe you understand to be the other documents.

22 A Well, I disagreed with a portion of your  
23 question. You said that there was a preferred  
24 mode of operation. What I said was -- implying  
25 that the suction mode would somehow be a preferred

1 mode of operation. It's not. And as far as I  
2 know, there's no mention of anything -- as I said,  
3 in the bulk of the specification, the only mention  
4 of a suction operation is this little section at  
5 the end, and I don't know of anything else in the  
6 prosecution history that mentions the suction  
7 operation.

8 Q And you're not aware of anything in the  
9 prosecution history that affirmatively would limit  
10 claim 1 to what we are calling the pressure mode?

11 MR. BUNKER: Objection to form.

12 THE WITNESS: Well, no, there's no  
13 doubt that my opinion is claim 1 limits the  
14 operation to the pressure mode, and, of  
15 course, that version of claim 1 is scattered  
16 throughout the prosecution history.

17 BY MR. JOHNSON:

18 Q I just want to confirm that you don't  
19 have any additional information outside of your  
20 report that you're relying upon for your position  
21 that claim 1 is limited to what we call the  
22 pressure mode.

23 A That's correct.

24 Q I want to ask you a couple of questions  
25 now back on the issue of Wyon, which I think was

1 Exhibit 4. So if we could go back to Figure 2 of  
2 Exhibit 4.

3 A Okay.

4 Q Now, if one were to -- you do see the  
5 holes number 7?

6 A I do.

7 Q On Figure 2, right?

8 A Yes.

9 Q And can you describe where the, the fan  
10 element, where it attaches to the seat?

11 A Can I describe it?

12 Q Yeah. You can see it, right?

13 A Well, it appears to attach by the, the  
14 two hoses.

15 Q Right, and where does it attach?

16 A Hard to say. It just appears to attach  
17 to the side of the cushion. There's no -- there  
18 are no details provided as to the internals of  
19 that connection.

20 Q I'm not asking about the internals of  
21 the connection. I'm just asking: Can you see  
22 where it attaches?

23 A Well, if you look over at Figure 1, it  
24 appears to attach right at the corner of the  
25 cushion.

1 Q Yeah, let's talk about Figure 2,  
2 though --

3 A Okay.

4 Q -- because they're different, I believe.  
5 The attachments are located at different places;  
6 is that fair to say?

7 A Can't really tell from those two.

8 Q So you believe that the attachment in  
9 Figure 1 is at the same location as in Figure 2?

10 A I don't think I can really tell. It  
11 appears to be a similar location.

12 Q Let's confine ourselves to Figure 2  
13 then.

14 A Okay.

15 Q Since it seems like there might be some  
16 difference, or if there's not, then let me know  
17 what you think. If you think they're in the exact  
18 same location, that's fine.

19 A I can't really say. I mean all we're  
20 showing in Figure 1 is a plane, a cross-sectional  
21 plane, and it appears that the attachment is at  
22 the corner of the cushion. And if I look at  
23 Figure 2, it also appears that the attachment is  
24 at the corner of the cushion.

25 Q I understand now. I understand now.

1 Thank you.

2 So the turbine will draw air, this  
3 suction turbine will draw air from the cushions?

4 A That's -- yes.

5 Q Okay, and we do see the holes 7, right?

6 A Correct.

7 Q And air will be drawn through those  
8 holes; is that correct?

9 A Correct.

10 Q What if one were to modify the size of  
11 the holes as shown on Figure 2? How will that  
12 change the functioning of the overall system?

13 MR. BUNKER: Objection to form.

14 BY MR. JOHNSON:

15 Q And I know we talked a lot about this  
16 earlier today, but I just want to hear it as it  
17 would apply to this particular embodiment here.

18 MR. BUNKER: Objection to form.

19 THE WITNESS: Let me answer that by  
20 referring to what Wyon says about that, and  
21 he -- the Wyon patent teaches that with the  
22 suction system, it obtains a fairly uniform  
23 distribution of flow over the holes without  
24 any variation in size.

25

1 BY MR. JOHNSON:

2 Q Do you agree with that?

3 A I think a variation in size would  
4 probably help, but, you know, what I mentioned  
5 earlier was one of the things that serves to make  
6 the flow more uniform is the spacer material. In  
7 spite of that, I think the hole distribution could  
8 potentially help, but that's not what Wyon  
9 teaches. Wyon teaches that you get -- because of  
10 the use of the suction system, you get a uniform  
11 distribution with the uniform size holes.

12 Q So let me expand upon it. Understanding  
13 what you said, what you believe Wyon teaches, if  
14 you take a look at Figure 2, right, and you see  
15 the holes there.

16 A Mm-hmm, yes.

17 Q If the holes that are the furthest away  
18 from where the inlets are of the fan, the air  
19 mover, what would be the technical consequence of  
20 such a design? And essentially I'm saying if you  
21 did a variable hole type of system on what we see  
22 here, what would be the technical consequence  
23 from, you know, your perspective as a person  
24 having knowledge --

25 A Technical consequence --

1 MR. BUNKER: Hold on. Are you done  
2 with your question?

3 MR. JOHNSON: Yes.

4 MR. BUNKER: Object to form.

5 THE WITNESS: Technical consequence  
6 of what in particular?

7 BY MR. JOHNSON:

8 Q What would happen -- I'll do it in  
9 layperson's terms. What would happen if you  
10 increase the size of the holes as you get further  
11 away from the inlet?

12 MR. BUNKER: Object to the form.

13 THE WITNESS: I think it has the  
14 potential to further equalize the flow rates  
15 in the holes.

16 BY MR. JOHNSON:

17 Q And why do you believe that?

18 A Well, we discussed this earlier, and I  
19 discussed how the flow must travel along a path  
20 from the, from the air moving device to the, to  
21 the holes, or in this case from the holes to the  
22 air moving device. And as you move further to the  
23 holes, more distant from the moving device, the  
24 distance it has to travel increases, and I think  
25 there would be a tendency to decrease the flow



1 rate as that increase, so the increase in the hole  
2 would compensate for that effect.

3 Q And I might not be quoting you exactly,  
4 but earlier you said it could be a good thing.

5 MR. BUNKER: Objection to form.

6 THE WITNESS: Correct.

7 BY MR. JOHNSON:

8 Q We're talking about holes a lot today.  
9 What about the number of holes? Is that something  
10 that factors into, you know, the functionality of  
11 the system?

12 MR. BUNKER: Objection to form.

13 THE WITNESS: Yes, but, you know,  
14 there's a whole another, a whole another  
15 entire topics that we haven't discussed at  
16 all, and that doesn't even appear in any of  
17 these patents. Well, it does to a certain  
18 extent. The number and distribution of  
19 holes, of course, has an effect on the  
20 cooling or heating effect on the occupant.  
21 That's mentioned a little bit in Wyon but not  
22 a whole lot.

23 BY MR. JOHNSON:

24 Q In column 3 of Wyon, Exhibit 4, lines 1  
25 through 5, Wyon refers to a number of holes 7 with

1 a diameter of preferably about 20 millimeters.

2 A That's a big hole.

3 Q Is it?

4 A Yeah. It's 3/4 of an inch.

5 Q It appears from this passage, though,  
6 that the passage does contemplate different sized  
7 holes; would you agree with that?

8 MR. BUNKER: Objection to form.

9 THE WITNESS: Yes.

10 BY MR. JOHNSON:

11 Q Also in Wyon on -- in column 4, lines 50  
12 through 54, it states, "The invention is not in  
13 any way limited to the preferred embodiment  
14 described above, but a man skilled in the art  
15 should without difficulty be able to find out a  
16 number of possible modifications without thereby  
17 departing from the basic idea of the invention."

18 What is the basic idea of this  
19 invention?

20 MR. BUNKER: Objection to form.

21 BY MR. JOHNSON:

22 Q The '220 patent.

23 A Well, it's a ventilation device. I'd  
24 say probably one of the key aspects of it is that,  
25 by use of it -- it is the advantages that are

1 gained by the use of a suction device. The patent  
2 makes a considerable point of pointing out the  
3 benefits of using a suction device.

4 Q For what? What's the ultimate benefit?

5 MR. BUNKER: Objection to form.

6 THE WITNESS: Well, I discussed  
7 those earlier. I read through the section  
8 which described the benefits obtained on  
9 cooling the occupant by use of the suction  
10 device.

11 MR. JOHNSON: I'm almost finished,  
12 actually. I'm probably going to need a break  
13 to look at my notes, but I'm almost done.

14 MR. BUNKER: Okay.

15 MR. JOHNSON: Why don't we take a  
16 break now.

17 THE VIDEOGRAPHER: Off the record  
18 at 1:35.

19 (Whereupon, a short recess was  
20 taken.)

21 (Exhibit 5 was marked for  
22 identification.)

23 THE VIDEOGRAPHER: Back on record  
24 at 1:52.

1 BY MR. JOHNSON:

2 Q Dr. Rice, let me hand to you what's been  
3 marked as Exhibit 5. This is the Spitalnick  
4 patent.

5 A Yeah, I say Spitalnick.

6 Q Spitalnick patent, the '230 patent. Are  
7 you familiar with this reference?

8 A Yes.

9 Q Today we talked a lot about what we call  
10 the pressure mode and the suction mode. I think  
11 it's fair to say in your report that you  
12 characterize this as a pressure mode system?

13 A That's correct, yes.

14 Q Is it possible that one could use a  
15 suction mode on the Spitalnik disclosure?

16 MR. BUNKER: Objection to form.

17 THE WITNESS: Not without rather  
18 significant modification.

19 BY MR. JOHNSON:

20 Q But it's possible?

21 A Yes.

22 Q How would they do it?

23 A Well, if you know from Spitalnik, it's  
24 designed to operate with the duct system of the  
25 vehicle itself, the air conditioning system of the

1 vehicle itself, so the flow, the flow air moving  
2 means is the air conditioning system or the HVAC  
3 system of the vehicle itself, which to the best of  
4 my knowledge are all pressure systems.

5 Q In order to add a suction mode system,  
6 you wouldn't then use the air conditioning system  
7 of the vehicle?

8 A No, not very easily.

9 Q You could, though?

10 A Theoretically you could, but from a  
11 practical realistic standpoint, no. You can  
12 generate suction from an AC system, but it's a  
13 very small amount of suction that you can  
14 generate. I actually designed a suction system  
15 for an AC system one time.

16 Q So let's set aside the, the air  
17 conditioning aspect of this design. What if you  
18 were to remove that and put a fan in there that  
19 permitted for suction? You could possibly do  
20 that?

21 A Oh, you mean use a separate fan?

22 Q A separate, yes.

23 A Yeah.

24 Q So that probably would be easier to do  
25 than modify the air conditioning unit to reverse

1 the flow; is that fair to say?

2 A Oh, yes, that's true.

3 Q Why? Why do you think that's true?

4 A Well, first of all, it would be very --  
5 as I said, I've actually designed suction systems  
6 for an AC system, but the purpose of that is for a  
7 climate control system, you have to sample the  
8 cabin air to take its temperature. So I used a  
9 suction system to do that, but it's a very small  
10 amount of air that it takes for the suction  
11 system, so to get the kind of flow rate you need,  
12 that would be next to impossible.

13 Q And for that reason it would be easier  
14 to use a separate fan?

15 A Yes.

16 Q How would one use a separate fan? How  
17 would you do it? How would you go about doing  
18 that?

19 MR. BUNKER: Objection to form.

20 THE WITNESS: Well, you'd have to  
21 have just a separate fan just mounted  
22 somewhere. I mean those are all design  
23 problems that you would have to consider,  
24 where you're going to put the fan, how are  
25 you going to connect it up to the cushion, et

1 cetera.

2 BY MR. JOHNSON:

3           Q       But it's possible.

4 All right. If we can go back now to  
5 Exhibit 1, which is the '129 patent.

6           A     I'm sorry. What did you say?

7           Q     The subject patent of the dispute, the  
8     '129 patent.

9                   A       Okay.

10           O     It's Exhibit 1.

11           A     Got it.

12           Q     So we were talking earlier about the  
13     language in claim 1, opening and receiving air  
14     from the air mover?

15           A     Okay.

16           Q     If you'd go to that language again, that  
17     would be useful.

18                   A     Okay.

19 Q And I think that it's fair to say that  
20 you showed us an opening 49 --

21                    A        Yes.

22 Q -- in Figure 3. Is it fair to say that,  
23 you know, with this opening 49, that the opening  
24 49 will receive air when the fan 50 is a  
25 pressurized fan, a positive flow fan?

1 A Correct.

2 Q And would you also agree that it's fair  
3 to say that 49, hole 49, if 50 is a suction mode  
4 fan, 49 also would receive air?

5 A But not from the air mover.

6 Q We'll get to that. You will agree that  
7 the opening will receive air?

8 A The opening itself will receive air,  
9 yes, either way, from suction or pressure mode.

10 Q And you would agree that the air mover  
11 is what is going to move that air so that it gets  
12 into the hole 49?

13 MR. BUNKER: Objection to form.

14 THE WITNESS: Yes, but the  
15 additional portion of that phrase is  
16 receiving air from, including an opening for  
17 receiving air from the air mover, and an air  
18 permeable body portion that's receiving air  
19 from the air mover, which I don't believe in  
20 suction mode that's not the case. It's the  
21 chamber that's receiving air through the  
22 opening.

23 BY MR. JOHNSON:

24 Q In this issue that you've identified,  
25 you don't believe it's a claim construction issue?



1 A Not at all.

2 Q Why not?

3 A It's quite clear.

4 Q Quite clear from what?

5 A Reading it.

6 Q And are you aware of what the Patent  
7 Office said about this precise issue?

8 MR. BUNKER: Objection to form.

9 THE WITNESS: About what?

10 BY MR. JOHNSON:

11 Q This issue that we're talking about.

12 MR. BUNKER: Objection to form.

13 THE WITNESS: No.

14 MR. JOHNSON: I have no further  
15 questions.

16 MR. BUNKER: Okay. I just have a  
17 couple.

18 EXAMINATION BY COUNSEL FOR PATENT OWNER

19 BY MR. BUNKER:

20 Q Dr. Rice, I just have a couple of  
21 questions for you.

22 Your report is marked Exhibit 2; is that  
23 right?

24 A Yes.

25 Q And in your report you outline your

1 opinion on the validity of some of the claims in  
2 the '129 patent?

3 A Yes.

4 Q Can you tell me which, which claims  
5 those are?

6 A I have to look.

7 Well, primarily number 1, which is  
8 the -- since we're addressing claims 1 through 7,  
9 most of my opinion was devoted to claim number 1,  
10 since it's the only independent claim in those,  
11 and I also provided 4 and 5, opinions on 4 and 5  
12 and 7.

13 Q The '129 patent has claims other than 1  
14 through 7; is that right?

15 A Yes.

16 Q And can you tell me what numbers those  
17 are?

18 A 8 through 12.

19 Q Did you form an opinion on the validity  
20 of claims 8 through 12?

21 A I did not.

22 MR. BUNKER: No further questions  
23 from me.

24 THE VIDEOGRAPHER: This deposition  
25 concludes at 2:01 and consists of three DVDs.

(Signature having not been  
waived, the video deposition of  
JAMES G. RICE, Ph.D. was  
concluded at 2:01 p.m.)

## ACKNOWLEDGEMENT OF WITNESS

I, James G. Rice, Ph.D., do hereby  
acknowledge that I have read and examined the  
foregoing testimony, and the same is a true,  
correct and complete transcription of the  
testimony given by me, and any corrections  
appear on the attached Errata sheet signed by  
me.

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(DATE)

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## 1 E R R A T A S H E E T

2 IN RE: IGB AUTOMOTIVE LTD. vs. GENTHERM GmbH

3 RETURN BY:

4 PAGE LINE CORRECTION AND REASON

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5 CERTIFICATE OF SHORTHAND REPORTER -- NOTARY PUBLIC

6 I, Laurie Bangart, Registered  
7 Professional Reporter, Certified Realtime  
8 Reporter, the officer before whom the  
9 foregoing deposition was taken, do hereby  
10 certify that the foregoing transcript is a  
11 true and correct record of the testimony  
12 given; that said testimony was taken by me  
13 stenographically and thereafter reduced to  
14 typewriting under my supervision; and that I  
15 am neither counsel for, related to, nor  
16 employed by any of the parties to this case  
17 and have no interest, financial or otherwise,  
18 in its outcome.

13 IN WITNESS WHEREOF, I have hereunto  
14 set my hand and affixed my notarial seal this  
15 1st day of March, 2015.

16 My commission expires: March 14th, 2016  
17  
18

19 \_\_\_\_\_  
20 LAURIE BANGART  
21 NOTARY PUBLIC IN AND FOR  
22 THE DISTRICT OF COLUMBIA  
23  
24  
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<b>\$350</b> 20:16 <b>a.m</b> 1:18 <b>able</b> 37:4 62:2 87:23 138:15 <b>absolutely</b> 92:14 <b>absorbing</b> 119:21 <b>AC</b> 141:12,15 142:6 <b>accelerate</b> 79:21 88:11 89:4 <b>accelerates</b> 88:16 <b>acceleration</b> 79:14 79:18 <b>acceptable</b> 96:21 <b>Accord</b> 20:3,6,7 <b>accumulate</b> 89:5 <b>accurate</b> 38:15 44:23 45:3,21 54:17,18 55:7 72:6 91:17 121:8 126:19 <b>accused</b> 9:2 18:5 <b>achieve</b> 36:3 107:23 <b>Achilles</b> 69:16 <b>acknowledge</b> 148:8 <b>ACKNOWLED...</b> 148:6 <b>Act</b> 126:5 <b>acts</b> 110:16 <b>actual</b> 60:1 77:22 101:21 <b>actuality</b> 77:19 <b>Acura</b> 20:3,5 <b>add</b> 21:1,3 141:5 <b>additional</b> 131:19 144:15 <b>addressing</b> 146:8 <b>adequate</b> 36:21 <b>advance</b> 81:20 <b>advantage</b> 69:16 <b>advantages</b> 138:25 <b>advertised</b> 99:2 <b>affect</b> 78:14 80:6 <b>affirmatively</b> 131:9	<b>affixed</b> 151:13 <b>afternoon</b> 121:2,3 <b>age</b> 30:25 <b>ago</b> 11:18 46:18 <b>agree</b> 48:9 82:23 99:18 110:20 115:2,4,6,6,8 123:24 127:9 128:13 135:2 138:7 144:2,6,10 <b>agreement</b> 30:6 <b>ahead</b> 119:4 <b>air</b> 17:2,5,8,13,19 17:20 31:21 36:10 36:13,15,19,22 37:1,3,5,18,19,21 38:2,24 39:13 44:23 45:9,25 48:1,3 50:5,23,24 52:10 57:18,20 62:6,19 63:2,8,16 64:24 65:6,11,14 65:23 66:12,25 67:5,16,16,25 68:20,24 69:7 72:1,14,15,20 73:24 74:16,24,24 75:14,23 76:5,11 84:5,10 85:2 96:15 97:6,7,8,8 99:8 100:3 103:21 103:21,25 104:4,4 112:8 119:6,9,25 121:17,19,19,20 121:21 122:4,4 126:18,18,20,20 127:9,9,10,10 128:3,4,6,12,13 128:18 134:2,3,7 135:18 136:20,22 140:25 141:1,2,6 141:16,25 142:8 142:10 143:13,14 143:24 144:4,5,7 144:8,10,11,16,17 144:17,17,18,19 144:21	<b>aircraft</b> 49:25 <b>airplane</b> 50:13 <b>al</b> 5:7 <b>allow</b> 51:12 63:1 <b>allowed</b> 91:5 <b>allows</b> 95:8 102:2 <b>amazing</b> 7:21 <b>amount</b> 141:13 142:10 <b>analysis</b> 38:23 39:12 54:5 55:18 60:3,16 69:24 75:18,23 76:6,7 77:12,13,13 80:15 85:12,15 102:10 102:11,21 103:10 103:13,14,16 <b>analyze</b> 87:11 <b>analyzed</b> 41:2 <b>and/or</b> 19:16 <b>anemometer</b> 37:2,7 <b>answer</b> 26:18 27:7 33:17 36:8 46:1,3 46:9 72:3 76:25 94:23 120:12 134:19 <b>anticipated</b> 27:16 <b>apart</b> 13:10,11 <b>apologize</b> 52:24 <b>apparent</b> 94:12 <b>Appeal</b> 1:3 5:6 <b>appear</b> 34:22 137:16 148:12 <b>appears</b> 128:9 132:13,16,24 133:11,21,23 138:5 <b>apples</b> 80:12 <b>application</b> 16:18 17:21 26:3 <b>applications</b> 75:4 <b>applied</b> 15:15 25:10 27:11,20 70:21 71:1,3,5 84:23 <b>applies</b> 14:22 108:13 123:2	<b>apply</b> 25:1 26:2,14 27:3 28:14 69:20 70:1,5,25 102:23 103:8 108:14 109:5 123:6 134:17 <b>Appreciate</b> 106:23 <b>approach</b> 27:14 46:6,7 52:16 72:7 99:13 100:6,11 105:3 106:3 <b>approaches</b> 81:23 <b>appropriate</b> 56:24 <b>approximately</b> 5:10 8:4 20:12 23:13 <b>area</b> 32:12,13 65:20 68:15 88:22 89:2,14,20 <b>areas</b> 23:24 36:11 <b>arguments</b> 94:19 <b>arrangement</b> 97:5 <b>arrive</b> 23:20 <b>arrived</b> 24:3 30:11 <b>arriving</b> 28:2 <b>art</b> 21:12,14 22:12 22:14,16,20,25 23:1,17 24:6,25 27:16 32:12 38:6 38:11,18 40:23 107:22 108:5 111:9 138:14 <b>aside</b> 141:16 <b>asked</b> 90:21,24 91:25 92:4,5 93:3 93:19 <b>asking</b> 27:2 32:24 33:5,10 108:2 109:17 120:9 132:20,21 <b>asks</b> 79:7 91:4 <b>aspect</b> 15:17 31:17 31:20 32:2,25 34:8,10,12 35:2,9 83:14 96:13 141:17 <b>aspects</b> 24:20 31:24	32:6 138:24 <b>assembly</b> 112:5 <b>asserted</b> 92:22 113:18 <b>associated</b> 62:16 79:17 <b>assume</b> 61:25 75:17 101:22 129:2,4 <b>assuming</b> 107:14 <b>atmospheric</b> 41:24 47:1,3 71:4,15,23 76:24 77:2,4 78:4 85:18,20 86:1,3 86:14,24 <b>attach</b> 132:13,15 132:16,24 <b>attached</b> 55:11 58:17,18 148:12 <b>attaches</b> 132:10,22 <b>attachment</b> 133:8 133:21,23 <b>attachments</b> 133:5 <b>attention</b> 96:6 111:24 <b>attorney</b> 30:5 <b>attorneys</b> 30:1 <b>AutoCAD</b> 102:16 <b>automated</b> 8:25 <b>automatic</b> 103:7 <b>automobile</b> 49:3 72:10 <b>automotive</b> 1:5 5:7 14:24 23:21,23 100:22 102:6 149:2 150:2 <b>auxiliary</b> 77:11 <b>available</b> 38:20,21 <b>Avenue</b> 2:6 3:4,13 5:12 <b>aware</b> 131:8 145:6
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