

FORD MOTOR COMPANY v. PAICE,LLC, ET AL.

NEIL HANNEMANN

April 30, 2015

Prepared for you by



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<p>1 UNITED STATES PATENT AND TRADEMARK OFFICE 2 BEFORE THE PATENT TRIAL AND APPEAL BOARD 3 -----x 4 FORD MOTOR COMPANY, : 5 Petitioner, : 6 vs. : IPR2014-00884 7 PAICE LLC & ABELL FOUNDATION, : 8 INC., : 9 Patent Owner. : 10 -----x 11 12 13 Volume 1 14 Deposition of NEIL HANNEMANN 15 Washington, DC 20005 16 Thursday, April 30, 2015 17 3:07 p.m. 18 19 20 21 22 23 Job No.: 81418 24 Pages: 1 - 60 25 Reported by: Janet A. Hamilton, RDR</p>	<p>1 A P P E A R A N C E S 2 ON BEHALF OF PETITIONER: 3 FRANK A. ANGILERI, ESQUIRE 4 JOHN P. RONDINI, ESQUIRE 5 BROOKS KUSHMAN, PC 6 1000 Town Center 7 22nd Floor 8 Southfield, Michigan 48075 9 (248) 358-4400 10 -and- 11 THOMAS W. YEH, ESQUIRE 12 LATHAM & WATKINS, LLP 13 555 Eleventh Street, NW 14 Suite 1000 15 Washington, DC 20004 16 (202) 637-2200 17 18 ON BEHALF OF THE PATENT OWNER: 19 BRIAN J. LIVEDALEN, ESQUIRE 20 FISH & RICHARDSON 21 1425 K Street, NW 22 11th Floor 23 Washington, DC 20005 24 (202) 783-5070 25</p>
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<p>1 Deposition of NEIL HANNEMANN, held at the 2 office of: 3 4 5 Fish & Richardson, PC 6 1425 K Street, NW 7 11th Floor 8 Washington, DC 20005 9 (202) 783-5070 10 11 12 13 14 15 16 17 18 Pursuant to Notice, before Janet A. Hamilton, 19 Registered Diplomat Reporter and Notary Public in and 20 for the District of Columbia. 21 22 23 24 25</p>	<p>1 C O N T E N T S 2 EXAMINATION OF NEIL HANNEMANN PAGE 3 By Mr. Rondini 5 4 5 6 7 E X H I B I T S 8 (Attached to the transcript) 9 HANNEMANN DEPOSITION EXHIBIT 10 Ex. 8 Declaration of Neil Hannemann in 5 11 Support of the Patent Owner's Response 12 Case IPR 2014-00884 13 Patent 7,104,347 14 Ex. 9 United States Patent No. 5,841,201 6 15 Tabata, et al. 16 Ex. 10 United States Patent No. 7,104,347 13 17 Severinsky, et al. 18 Ex. 11 Hand drawing engine speed/torque 40 19 20 21 22 23 24 25</p>

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1 P R O C E E D I N G S
2 -----
3 (Hannemann Deposition Exhibit No. 8 was
4 pre-marked for identification and is attached to the
5 transcript.)
6 NEIL HANNEMANN,
7 a witness herein, being duly sworn, testified as
8 follows:
9 EXAMINATION BY COUNSEL FOR PETITIONER
10 BY MR. RONDINI:
11 Q Good afternoon, Mr. Hannemann.
12 **A Good afternoon.**
13 Q I'm going to hand you what's been marked
14 Exhibit No. 8, and if it's okay we're just going to
15 continue the numbering from the previous one.
16 MR. LIVEDALEN: Yeah, sure. Thanks.
17 Q Mr. Hannemann, what is Exhibit No. 8 that I
18 just handed you?
19 **A That's my declaration in IPR2015-00884 [sic]**
20 **for patent 7,104,347.**
21 Q And do you recall what references you were
22 reviewing with respect to this declaration?
23 **A It's in the table of contents, but it's**
24 **reference we call Caraceni, and then there were two,**
25 **two patents by Tabata.**

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1 Q The Tabata '201 patent and the '501 patent?
2 **A That's correct.**
3 Q Could you turn to page 60 of your report.
4 Page 60 starts your analysis with respect to the
5 Tabata '201 and Tabata '501 patent; correct?
6 **A Yes.**
7 Q You start off in paragraph 113 talking about
8 Tabata 1, and it calculates demand power; is that
9 correct?
10 **A Yes.**
11 Q Can you explain what demand power means?
12 **A Well, it can be contextual. So I have to**
13 **remember how Tabata used that, and demand power I**
14 **refer to it as instantaneous drive power.**
15 Q Paragraph 113 you also talk about how Tabata
16 '201 determines or calculates instantaneous drive
17 power; is that correct?
18 **A Well, I said it can be calculated by the**
19 **product being torque. I'm not sure that Tabata's**
20 **doing exactly that way.**
21 (Hannemann Deposition Exhibit No. 9 was
22 marked for identification and is attached to the
23 transcript.)
24 Q Mr. Hannemann, what's been marked and handed
25 to you as Exhibit No. 9 is US Patent 5,841,201. Do

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1 you recognize this patent?
2 **A Yes, I do.**
3 Q What is this patent?
4 **A This is the what we refer to as the Tabata**
5 **'201 patent.**
6 Q Okay. Can you turn to paragraph 121 of your
7 report? Paragraph 121 you continue talking about
8 instantaneous demand power, and then you conclude the
9 paragraph by illustrating figure 5 of Caraceni; is
10 that correct?
11 **A Yes.**
12 Q Why did you insert the figure from Caraceni
13 to your discussion of Tabata '201?
14 **A Well, it's just in the references we had**
15 **involved six IPRs just one where there was a torque in**
16 **power curve, and I just picked that as an example.**
17 Q Why did you feel that was important?
18 **A I did it to show that there is, you know,**
19 **more than one torque curve if you're not at wide open**
20 **throttle that you could have various torque levels,**
21 **and then to, just to digitize the, the torque curve to**
22 **create some of the other graphs that I created in the**
23 **declaration.**
24 Q Okay. What do you mean by digitize the
25 graphs?

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1 **A Well, just to pull off the values and get**
2 **torque and, torque and RPM. I could have used fewer**
3 **values and just scaled it off, but it's just the way I**
4 **did it.**
5 Q So you're referring to paragraph 123? Is
6 that what you're looking at where you have a chart
7 with engine speed and torque? Is that what you're
8 talking about --
9 **A Yes.**
10 Q -- with digitizing?
11 **A That's the data from the graph. So that was**
12 **the purpose for using this graph.**
13 Q So is it fair to say that you extrapolated
14 the data from the graph shown in paragraph 121 to
15 generate the chart shown in 123?
16 **A That's accurate, yes.**
17 Q Okay. And you did that I believe you just
18 testified in order to generate the figures and graphs
19 that you have in paragraphs 124 and 126 of your
20 report; is that correct?
21 **A Yes.**
22 Q What are you showing in paragraph 126 of
23 your report?
24 **A Well, they're all, those few paragraphs are**
25 **all related, but 126 just shows a control sample of a**

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1 **control strategy that would compare road load to a**
2 **setpoint.**
3 Q What control strategy is it a sample of?
4 MR. LIVEDALEN: Objection. Vague.
5 **A Yeah. This would be out of the subject**
6 **matter.**
7 Q So it's your opinion that paragraph 126, the
8 chart in paragraph 126 is illustrating the control
9 strategy as disclosed by the '347 patent?
10 **A Yes.**
11 Q What are you representing on the y-axis?
12 **A Of the graph in 126?**
13 Q Correct.
14 **A Yeah. That's the 5 Newton meters is 30**
15 **percent of the 115 Newton meters of the Caraceni**
16 **engine.**
17 Q I want to back up and be more general. Just
18 on the y-axis what are you illustrating on the y-axis
19 in general?
20 **A Oh, it's engine torque.**
21 Q Engine torque. And is the x-axis
22 illustrating engine speed?
23 **A Yes.**
24 Q And what does the area shaded in green
25 represent?

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1 **A That's torque values that are above 30**
2 **percent of the maximum torque output.**
3 Q And what is occurring in the area shaded
4 green?
5 **A Well, various things could occur. It's just**
6 **showing above and below the setpoint.**
7 Q Well, with respect to the control strategy
8 the '347 what would happen above in the green area?
9 MR. LIVEDALEN: Objection. Vague.
10 **A Well, that's the decision to turn on and**
11 **operate the engine.**
12 Q And below in the red area, what's happening
13 there?
14 **A In the red area the engine would not be**
15 **operated and you'd have an electric-only mode.**
16 Q Okay. Sticking with this graph shown in
17 paragraph 126, if we had an engine torque value of 60
18 Newton meters and engine speed of 2,000 RPM, what
19 would the control strategy of the '347 do?
20 MR. LIVEDALEN: Objection. Vague.
21 Incomplete hypothetical. Foundation.
22 **A I didn't do this, this graph to illustrate**
23 **the entire working of the control strategy. So I'd**
24 **have to probably read through the patent to try to**
25 **figure that out. That's not something I analyzed.**

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1 **This was done to get a comparison really to lead in to**
2 **the later graph where I compare the power threshold to**
3 **the torque threshold.**
4 Q Well, you previously testified this is the
5 control strategy of the '347; correct?
6 **A This is based on the control strategy. It's**
7 **not a full disclosure of the control strategy.**
8 Q What's missing from it?
9 **A Well, there's other modes of operation that**
10 **this graph doesn't, doesn't describe.**
11 Q What other modes?
12 **A All this graph is describing is the, the 30**
13 **percent MTO setpoint which the engine operates or**
14 **doesn't operate. That's all it's doing.**
15 Q Okay. So based just on the graph here, if
16 you had an engine torque value of 60 Newton meters and
17 engine speed of 2,000 RPM, what would the operational
18 mode be?
19 MR. LIVEDALEN: Objection. Vague.
20 Foundation. Incomplete hypothetical.
21 **A Yeah. That's not an analysis that I've**
22 **done.**
23 Q You previously testified that the green area
24 that's shaded on this graph is where the engine
25 operates; is that correct?

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1 **A Yes.**
2 Q And red area is where the motor operates; is
3 that correct?
4 **A Yes, and there may be motor operation in the**
5 **green area. I just didn't go to that level of detail.**
6 Q What do you mean there may be motor
7 operation in the green area?
8 **A If the motor's supplementing the maximum**
9 **torque of the engine.**
10 Q Where is the maximum torque of the engine
11 illustrated on this graph?
12 **A Well, the maximum I use for the 30 percent**
13 **is 115 Newton meters which is along in the blue line**
14 **probably between 4,000 and 5,000 RPM.**
15 Q So the maximum torque output is above every
16 portion that's shaded in green; isn't that correct?
17 **A That's the maximum torque at that particular**
18 **engine speed.**
19 Q So is it your opinion that control strategy
20 as described in '347 the motor can operate somewhere
21 in the green shaded area?
22 MR. LIVEDALEN: Objection. Vague.
23 **A I think there's, there's other modes that I**
24 **didn't put on this graph. So could there be? Yes,**
25 **it's possible, but I didn't analyze every mode on this**

1 **graph. Like I said, this was just used to illustrate**
2 **the 30 percent MTO setpoint.**

3 Q And the 30 percent MTO setpoint, that's the
4 claim setpoint of the '347 patent?

5 MR. LIVEDALEN: Objection. Vague.
6 Mischaracterizes previous testimony. Calls for legal
7 conclusion.

8 **A It is a setpoint at least as claimed in**
9 **claim 23.**

10 Q What about claim 1 of the '347 patent?

11 **A I don't have a section in my declaration**
12 **about claim 1 in particular.**

13 **(Hannemann Deposition Exhibit No. 10 was**
14 **marked for identification and is attached to the**
15 **transcript.)**

16 Q Mr. Hannemann you've just been handed
17 Exhibit No. 10 which is US Patent 7,104,347. Do you
18 recognize this exhibit?

19 **A Yes, I do.**

20 Q What is this exhibit?

21 **A It's what you just said it was.**

22 Q This is the '347 you were just referring to?

23 **A Yes.**

24 Q Could you turn to column 58 of the '347
25 patent. Do you see setpoint mentioned within claim 1

1 **than the maximum torque output as claim 1 describes.**

2 Q Can you look at claim 6 of the '347 patent?

3 **A Yes.**

4 Q Does claim 6 recite a setpoint that's at
5 least 30 percent of the maximum torque output of the
6 engine?

7 **A It actually says at least approximately 30**
8 **percent of the maximum torque output.**

9 Q So with claim 6 as guidance, is it fair to
10 say that the 35 Newton meter setpoint you have
11 illustrated in paragraph 126 is representative of that
12 setpoint?

13 **A It would also apply to that setpoint, yes.**

14 Q So is it fair to say that since claim 6
15 depends from claim 1, the 35 Newton meter setpoint you
16 have illustrated in paragraph 126 is illustrative of
17 the setpoint claimed in or recited in claim 1?

18 **A Well, I'm not sure that I was doing that**
19 **kind of analysis when I picked the number for the**
20 **graph. So if we're still talking in context to the**
21 **graph, I would say that I wouldn't apply that kind of**
22 **statement.**

23 Q But this setpoint you have illustrated in
24 paragraph 126, the graph in 126 of your report, it is
25 representative of the setpoint as recited in claim 6

1 of the '347 patent?

2 **A Yes, I do.**

3 Q Is the setpoint that is recited in claim 1
4 of the '347 patent the same setpoint you're
5 illustrating in paragraph 126 of your report?

6 MR. LIVEDALEN: Objection. Calls for legal
7 conclusion.

8 **A No. It could be, and the setpoints are**
9 **illustrated values in the patent, and someone of skill**
10 **in the art would take this patent and then apply it to**
11 **the calibration of implementing the patent, and they**
12 **may come up with a slightly different value, and the**
13 **different vehicles applying this technology may have a**
14 **different value. So the numbers here are, are**
15 **illustrative.**

16 Q I realize the numbers are illustrative. I'm
17 wondering, you have a torque value illustrated here as
18 a setpoint; is that correct?

19 **A Yes.**

20 Q And you said that's the setpoint as recited
21 in claim 23 of the '347 patent; is that correct?

22 MR. LIVEDALEN: Objection. Mischaracterizes
23 previous testimony.

24 **A Yeah. I use 30 percent. 30 percent is in**
25 **more than one claim, and it also is substantially less**

1 of the '347 patent; is that correct?

2 **A It does illustratively represent that, yes,**
3 **it does.**

4 Q With respect to the setpoint illustrated in
5 paragraph 126, why did you illustrate it as a straight
6 line that's parallel to the engine speed x-axis?

7 **A Well, because it's a fixed value. It's 30**
8 **percent of the maximum torque output gives you a**
9 **constant number.**

10 Q Is it always going to be a straight line?

11 **A You know, I think that's -- as I said**
12 **before, somebody applying the patent would calibrate**
13 **the system and, you know, applying the patent there's**
14 **some, there's some scope to calibrating to a**
15 **particular car, and that may change the value. It**
16 **could make it change the character of the line or**
17 **change the values.**

18 Q Okay. You said it could change the
19 character of the line. Can you please explain what
20 you meant by that?

21 **A Yes. Some -- someone may choose to, to not**
22 **have it a constant value across the entire RPM range.**

23 Q Well, what example could you provide that
24 would be a nonconstant value across the entire RPM
25 range?

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