UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION

AUTOMOTIVE TECHNOLOGIES INTERNATIONAL, INC.,

Plaintiff/Counter-Claimant,

v. Case No. 08-11048

DELPHI CORPORATION,

Defendant/Counter-Defendant.
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OPINION AND ORDER CONSTRUING CLAIMS

The matter is before the court for construction of five United States patents pursuant to *Markman v. Westview Instruments*, *Inc.*, 52 F.3d 967 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996). Plaintiff Automotive Technologies International, Inc. ("Plaintiff" or "ATI") has briefed its claims, and Defendant Delphi Corporation ("Defendant" or "Delphi") filed a response. The court received extensive briefing from the parties and conducted a claim construction hearing on July 14, 2009.

I. INTRODUCTION[1]

This litigation involves U.S. Patent Nos. 7,243,945 ("'945 Patent"), 7,807,029 ("'029 Patent"), 6,833,516 ("'516 Patent"), 6,484,080 ("'080 Patent") and 6,785,824 ("'824 Patent"), all of which concern the alleged infringement by an automobile sensor known as PODS that Defendant manufactures. PODS is a bladder device placed in the bottom portion of a passenger seat and used to determine the state of the occupant so

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[1] The facts set forth in the Introduction section provide only background and context. They do not supplement or supplant the court's construction as set forth in the court's Discussion of the claims.

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that vehicle airbags may be most effectively deployed. Defendant initially filed this action as a declaratory judgment action in response to an infringement suit filed by Plaintiff in the United States District Court for the Eastern District of Texas. This court realigned the parties in this case for purpose of discovery and trial preparation, with ATI as Plaintiff and Delphi as Defendant.

Plaintiff has earlier litigated several related patents in this district, including Patent No. 5,822,707 ("'707 Patent") in this district before the Hon. Lawrence P. Zatkoff; Patent No. 5,231,253 ("'253 Patent") before this court, *Automotive Technologies Int'l, Inc. v. BMW of North America, Inc.*, No. 01-71700, 2004 WL 5465964 (E.D. Mich. March 31, 2004); and several patents other patents construed by this court in *Automotive Technologies Int'l, Inc. v. Siemens VDO Automotive Corp.*, No. 06-15756, 2008 WL 5085389 (E.D. Mich. Nov. 25, 2008). Plaintiff contends that the patents involved in this litigation arise from the '707 Patent litigated before Judge Zatkoff. The court now turns to the claims presented for construction.

II. CLAIMS TO BE CONSTRUED[2]

The parties have submitted the following phrases for construction by the court (phrases for construction are underlined):

A. U.S. PATENT NO. 7,243,945

1. Claim 1

> 1. An apparatus for sensing pressure applied to a seat by an occupant of the seat and for controlling deployment of an airbag comprising:

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[2]The claim phrases marked with an asterisk were part of Plaintiff's initial brief; however, the parties have since resolved the disputed terms, in the course of following the court's scheduling order. (*See* Pl.'s Reply Br. at 2-4.)

a bladder defining a chamber*, said bladder being adapted to be arranged in a seat portion of the seat;

a control module arranged to control deployment of the airbag*; and

a pressure sensor for measuring a pressure in said chamber, said pressure sensor generating a signal based on the measured pressure in said chamber and providing said signal to said control module.

2. Claim 2

2. A method for controlling an occupant restraint device arranged to protect an occupant in a vehicle in a crash involving the vehicle, comprising the steps of:

arranging a bladder defining a chamber* in a seat portion of a seat in the vehicle;

measuring a pressure in the chamber;

providing a signal based on the measured pressure in the chamber to a control module;

and controlling deployment of the occupant restraint device by means of the control module*

3. Claim 4

4. A vehicle including a system for protecting art occupant in the vehicle in a crash involving the vehicle, comprising:

an occupant restraint device arranged in the vehicle to protect the occupant of the vehicle;

a seat having a seat portion*

a bladder having a chamber*, said bladder being arranged in said seat portion

a control module arranged to control deployment of said occupant restraint device;

and a pressure sensor for measuring a pressure in said chamber, said pressure sensor generating a signal based on the measured pressure in said chamber and providing said signal to said control module.

4. Claim 4

6. The method of claim 2, further comprising the step of controlling at least one other vehicular system, subsystem or component by means of the control module*.

B. U.S. PATENT NO. 7,807,029

1. Claims 1, 2, 3, 8, 10, and 13

1. A vehicle comprising

a seat having a bottom portion and a bladder arranged in said bottom portion, said bladder having at least one chamber*

at least one component adjustable based on occupancy of said seat, said at least one component being a component which interacts with or is interacted by an occupant of said seat; and

an arrangement arranged to adjust*said at least one component based on occupancy of said seat, said arrangement comprising:

> a measurement system of measuring the pressure in said at one chamber;
>
> an adjustment system arranged to adjust said at least one component; and
>
> a processor coupled to said measurement system and to said adjustment system and arranged to determine an adjustment for said at least one component by said adjustment system whereby said adjustment system is directed or controlled by said processor to adjust said at least one component to provide for the determined adjustment thereof.

2. The vehicle of claim 1, wherein said at least one component is an occupant restraint device and said adjustment system is a system for adjusting deployment of said occupant restraint device

3. The vehicle of claim 2, wherein said occupant restraint device is an airbag and said deployment adjustment system is arranged to control at least one of* flow of gas into said airbag, flow of gas out of said airbag, rate of generation of gas and amount of generated gas

8. The vehicle of claim 1, wherein said bladder includes constraining means arranged in said interior for constraining flow of fluid within said

interior, said measurement system measuring the pressure of the fluid in said bladder.

10. The vehicle of claim 8, wherein said bladder comprises a plurality of chambers, each of said chambers being arranged at a different location said bottom portion of said seat.

13. The vehicle of claim 1, wherein said bladder has an interior containing fluid and a mechanism in said interior arranged to restrict flow of the fluid from one portion of said interior to another portion of said interior.

C. U.S. PATENT NO. 6,833,516

1. Claims 14, 15, 18, and 19

14. A method for controlling a deployable component in a vehicle, comprising the steps of:

> measuring at least one morphological characteristic of an occupant*;
>
> obtaining a current position of at least a part of a seat on which the occupant is situated;
>
> and controlling* the component based on the at least one measured morphological characteristic of the occupant and the current position of the seat, the step of controlling the component comprising the step of suppressing deployment of the component based on the at least one measured morphological characteristic of the occupant and the current position of the seat*;

15. The method of claim 14,

wherein the step of obtaining a current position of at least a part of the seat comprises the step of obtaining the current position of a bottom portion of the seat.

18. The method of claim 14,

wherein the step of measuring the at least one morphological characteristic comprises the step of arranging a weight sensor in connection with the seat such that the at least one morphological characteristic is the weight of the occupant.

19. The method of claim 14,

wherein the component is an airbag, the step of controlling the component comprising the step of controlling inflation of the airbag when deployment of the airbag is not suppressed.

D. U.S. PATENT NO. 6,484,080

1. Claims 19, 24, 26, 27, and 28

19. A method for controlling at least one part of the vehicle comprising the steps of mounting a [plurality of sensor systems]* at different locations on the vehicle; measuring a state* of the sensor system or a state* of the respective mounting location of the sensor system;

diagnosing the state of the vehicle based on the measurements of the state of the sensor systems or the state of the mounting locations of the sensor systems, and

controlling the at least one part based at least in part on the diagnoses state of the vehicle.

24. The method of claim 19,

wherein the at least one part is an occupant restraint device,

the step of controlling the at least one part comprising the steps of controlling the system* in an attempt to minimize injury to an occupant in the event of a crash.

26. The method of claim 25 [25. The method of claim 19, wherein the step of diagnosing the state of the vehicle comprises the step of determining a location of an impact between the vehicle and another object.*],

wherein the at least one part is an occupant restraint device,

further comprising the step of forecasting the severity of the impact using the force/crush properties of the vehicle at the impact location*, the step of controlling the at least one part comprising the step of controlling the occupant restraint device based at least in part on the severity of the impact*.

27. The method of claim 19,

wherein the at least one part is an occupant restraint device, further comprising the step of sensing the weight of an occupying item of a seat of the vehicle,

the step of controlling the at least one part comprising the step of controlling the occupant restraint device based at least in part on the weight of the occupying item of the seat*.

28. The method of claim 19,

further comprising the step of displaying an indication of the state of the vehicle.

2. Claim 33

33. In a motor vehicle, a control system for controlling at least on part of the vehicle comprising:

> a plurality of sensor systems mounted on the vehicle, each of said sensor systems providing a measurement of a state of said sensor system or a state of the mounting location of said sensor system and generating a signal representative of the measurement; and
>
> a pattern recognition system for receiving the signals from said sensor systems and diagnosing the state of the vehicle based on the measurements of said sensor systems;
>
> said pattern recognition system being arranged to generate a control signal for controlling the at least one part based at least in part on the diagnosed state of the vehicle.

E. U.S. PATENT NO. 6,785,824

1. Claims 1, 5, and 7

1. In a motor vehicle, a control system for controlling an occupant restraint system, comprising:

> a plurality of electronic sensors mounted at different locations on the vehicle*, each of said sensors providing a measurement related to a state of said sensor* or a measurement related to a state of the mounting location; and
>
> a processor coupled to said sensors and arranged to diagnose the state of the vehicle based on the measurements of said sensors,
>
> said processor being arranged to control the occupant restraint system based at least in part on the diagnosed

state of the vehicle in an attempt to minimize injury to an occupant.

5. The vehicle of claim 1,

wherein the state of the vehicle diagnosed by said processor includes a determination of a location of an impact between the vehicle and another object*.

7. The vehicle of claim 1,

wherein at least one of said sensors is a weight sensor coupled to a seat in the vehicle for sensing the weight of an occupying item of the seat,

said weight sensor being coupled to said processor and said processor controlling the occupant restraint system based on the state of the vehicle and the weight of the occupying item of the seat sensed by said weight sensor.

III. STANDARD

Under *Markman*, a court conducting a patent infringement analysis undertakes a two-step process. First, the court must determine the meaning and scope of the protected patents. This step, claim construction, is a question of law for the court. *Markman*, 52 F.3d at 976, 979. Once the court has interpreted the claims at issue, the second step requires comparing the properly construed claim and the accused device to determine whether the accused device is infringing. *Id*. at 976. The infringement analysis, generally, is for a jury.

"The construction of claims is simply a way of elaborating the normally terse claim language in order to understand and explain, but not to change, the scope of the claims." *Embrex, Inc., v. Serv. Eng'g Corp.,* 216 F.3d 1343, 1347 (Fed. Cir. 2000) (quotation omitted). In construing the claim, the court should keep in mind that "the language of the claim defines the scope of the protected invention." *Bell Communications Research, Inc. v. Vitalink Communications, Corp.*, 55 F.3d 615, 619

(Fed. Cir. 1995). For this reason, "'resort must be had in the first instance to the words of the claim,' words [which are ascribed] their ordinary meaning unless it appears the inventor used them otherwise." *Id.* at 620 (quoting *Envirotech Corp. v. Al George, Inc.,* 730 F.2d 753, 759 (Fed. Cir. 1984)). Further, "it is equally 'fundamental that claims are to be construed in light of the specifications and both are to be read with a view to ascertaining the invention.'" *Id.* (quoting *United States v. Adams*, 383 U.S. 39, 49 (1966)).

In construing a claim, the court begins with an analysis of the ordinary meaning of the disputed claim terms. The terms used in the claims bear a heavy presumption that they mean what they say, having the ordinary meaning that would be attributed to those words by persons having ordinary skill in the relevant art. *Texas Digital Systems, Inc. v. Telegenix, Inc.* 308 F.3d 1193, 1202 (Fed. Cir. 2002). The court can then look to other intrinsic evidence, including the specification, and the prosecution history if in evidence. *Interactive Gift Express, Inc. v. Compuserve, Inc.,* 256 F.3d 1323, 1331 (Fed. Cir. 2001).

After exhausting the available intrinsic evidence, the court may also consider extrinsic evidence "to aid [it] in coming to a correct conclusion as to the true meaning of the language employed in the patent." *Markman*, 52 F.3d at 980 (quotations omitted). Extrinsic evidence consists of all evidence external to the patent and prosecution history, including testimony of inventors or experts, dictionaries, and learned treatises. *Id.* "However, extrinsic evidence cannot be used to contradict the established meaning of the claim language." *Gart v. Logitech,* 254 F.3d 1334, 1340 (Fed. Cir. 2001). In sum, "the ordinary and customary meaning of a claim term may be determined by reviewing a

variety of sources." *Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc.*, 334 F.3d 1294, 1298 (Fed. Cir. 2003). These sources "include the claims themselves, dictionaries and treatises, and the written description, the drawings, and the prosecution history." *Id.* (internal citations omitted); *see also Inverness Med. Switzerland GmbH v. Warner Lambert Co.*, 309 F.3d 1373, 1378 (Fed. Cir. 2002) (noting that dictionaries are often helpful in ascertaining plain and ordinary meaning of claim language).

The parties agree that some of the claims before the court are means-plus-function claims. It is well established that 35 U.S.C. § 112 permits inventors to use generic means expression in claim limitations, provided that they clearly identify and describe the corresponding structures to perform the stated function in the patent specification. *Atmel v. Info. Storage Devices, Inc.*, 198 F.3d 1374, 1381 (Fed. Cir. 1999). Paragraph 6 of 35 U.S.C. § 112 permits the use of means-plus-function language, stating:

> An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

35 U.S.C. § 112, ¶ 6. The court interprets claims written in means-plus-function form to include only the "structure set forth in the specification and its equivalents." *Kahn v. Gen. Motors Corp.*, 135 F.3d 1472, 1476 (Fed. Cir. 1998).

In construing means-plus-function claim limitations, a court employs a two-step process. First, the court identifies the particular function claimed, often called the stated or claimed function. Second, it identifies the "corresponding structure, material, or acts described [by the claimant] in the specification." *Budde v. Harley-Davidson, Inc.*, 250

F.3d 1369, 1376 (Fed. Cir. 2001); *see also Asyst Tech., Inc. v. Empak, Inc.,* 268 F.3d 1364, 1369-70 (Fed. Cir. 2001) (describing the two steps in construing a means-plus-function limitation). A party choosing to write a claim in the means-plus-function format, contrary to the ordinary situation, is limited to claiming the corresponding structure actually disclosed in the specification and its equivalents. *Kahn*, 135 F.3d at 1476.

Furthermore, "a structure disclosed in the specification is 'corresponding' structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim." *B. Braun Med., Inc. v. Abbott Labs.,* 124 F.3d 1419, 1424 (Fed. Cir. 1997). "Whether or not the specification adequately sets forth structure corresponding to the claimed function necessitates consideration of that disclosure from the viewpoint of one skilled in the art." *See, e.g., Budde*, 250 F.3d at 1376 (citing *In re Ghiron*, 442 F.2d 985, 991 (C.C.P.A. 1971) (noting that functional-type block diagrams may be acceptable corresponding structure if they serve in conjunction with the rest of the specification to enable a person skilled in the art to make a selection and practice the claim invention)).

Step-plus-function claims involve an analysis similar to means-plus-function claims in that certain phrases trigger a presumption that 13 U.S.C. § 112, ¶ 6 applies, but other aspects of the element, such as the recitation of a specific act, may overcome that presumption. *Seal-Flex, Inc. v. Athletic Track and Court Constr.,* 172 F.3d 836, 848 (Fed. Cir. 1999) (Rader, J., concurring). Use of the term "step for" in a method claim signals the patentee's intent to invoke § 112, ¶ 6 and thus gives rise to the presumption that the "step for" limitations are in step-plus-function format. *Masco Corp. v. United States,* 303 F.3d 1316, 1326 (Fed. Cir. 2002). Without "step for" language, however, a

method claim is subject to the strictures of § 112, ¶ 6 only if it recites steps for performing a specified function but does not recite any act in support of that function. *See O.I. Corp. v. Tekmar Co.,* 115 F.3d 1576, 1583 (Fed. Cir. 1997). Ultimately, § 112, ¶ 6 is implicated only when step-plus-function without acts are present. *Id.* In effect, § 112, ¶ 6 provides that an element in a method claim may be recited as a step for performing a specified function without the recital of acts in support of the function. *Id*.

IV. DISCUSSION

A. The '945 Patent

1. Claim 1

a. *"generating a signal based on the measured pressure in said chamber and providing said signal to said control module"*

Plaintiff contends that no additional construction is needed regarding this phrase. (Joint Final Claim Chart ("Chart") at 1.) Defendant, however, proposes that the phrase be reworded so that "based on" is replaced by "indicating" and changing the participles to present active verbs so that the phrase would state: "the pressure sensor generates a signal indicating the measured pressure in the chamber and provides that signal to the control module." (*Id.*) In response, Plaintiff argues that Defendant's construction is too narrow because it requires that the signal transmit the actual pressure measure of the chamber and does not specify which control module receives the signal. (Pl.'s Br. at 17-18.)

Defendant argues that the use of "based on" leaves open the possibility that the signal could have inputs in addition to the measured pressure. (Def.'s Br. at 12.) Defendant cites support from the patent specification and the prosecution history of the

‘945 Patent that the signal is “indicative of” the measured pressure. In addition to “indicative of,” the specification also uses “based thereon,” “based on,” and “indication of,” in various places. For example, both parties cite:

> The control system **188**, e.g., a microprocessor, is arranged to receive the digital signals form the transducers **180**, **181** and determine the weight of the occupying item of the seat *based thereon*. In other words, the signals from the transducers **180**, **181** are processed by the control system **188** to provide an *indication of* the weight of the occupying item of the seat, i.e., the force exerted by the occupying item on the seat support structure.

‘945 Patent col. 151 l.27-34 (emphasis added).

Plaintiff makes clear that its concern is to clarify that the pressure sensor takes the raw data and converts it to a “digitized” signal that is derived from, or “based on,” the measured pressure, rather than directly reporting, or “indicating,” the measured pressure. (Pl.’s Reply Br. at 4-5.) The court finds Defendant’s use of present active verbs makes the claim more understandable; however, Plaintiff has a valid argument regarding the signal that results from the measured pressure. The court finds Defendant’s argument regarding the possibility that other inputs could be included if the signal is only “based on,” rather than “indicated by,” the measured pressure unpersuasive. A signal “based on” the measured pressure means that the measured pressure is derived from the signal, but it does not mean that it is derived from anything thing else. Because “‘resort must be had in the first instance to the words of the claim,’ words [which are ascribed] their ordinary meaning unless it appears the investor used them otherwise,” *Bell Comm’ns Research, Inc.*, 55 F.3d at 620 (quoting *Environtech Corp.*, 730 F.2d at 759), the court finds that it is not necessary to further construe the terms of this claim.

Finally, the court agrees with Defendant that replacing "said" with "the" increases the readability of the claim without changing its meaning. "The" is the definite article which denotes a particularly identified object. Because the claim describes an apparatus comprising "a control module," "the" is sufficient to identify that same control module. Contrary to Plaintiff's argument, the claim does not leave open the possibility that more than one control module will be part of the apparatus.

Accordingly, the court will construe "generating a signal based on the measured pressure in said chamber and providing said signal to said control module" as "generates a signal based upon the measured pressure in the chamber and provides that signal to the control module."

2. Claim 2

a. *"providing a signal based on the measured pressure in the chamber to a control module"*

ATI contends that no construction is necessary whereas Defendants argue that the court should construe this phrase to parallel Claim 1: "providing a signal indicating the measured pressure in the chamber to the control module."

For subsequent claims that reproduce relevant language construed above (particularly, "a signal based on the measured pressure"), the court's construction of those claims shall correspond to the above construction.[3] The Federal Circuit has

[3]Indeed, the parties' claim construction chart relies heavily upon "see above" as the parties refer back, and even across patents, to various phrases in the claim construction chart. The court sees no reason to deviate from a consistent construction of this language across all of the patents. Likewise, where the parties rely upon earlier constructions, across claims or patents, the court will adhere to consistent constructions. While in some cases like language in different patents might result in differing constructions, in this case the parties agree that the language should be construed similarly.

instructed that "[u]nless otherwise compelled, when different claims of a patent use the same language, we give that language the same effect in each claim." *Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc*., 381 F.3d 1111, 1119 (Fed. Cir. 2004); *see also Fonar Corp. v. Johnson & Johnson,* 821 F.2d 627, 632 (Fed. Cir. 1987), *overruled on other grounds by Cardinal Chemical Co. v. Morton Intern., Inc*., 508 U.S. 83 (1993); *see generally Digital Biometrics, Inc. v. Identix, Inc.* 149 F.3d 1335, 1345 (Fed. Cir. 1998) ("[W]hatever interpretation we assign should encompass both uses because the same word appearing in the same claim should be interpreted consistently.").

However, the court will use the indefinite article "a" rather than "the" because no prior mention of a "control module" is given in this claim to which to refer. Accordingly, the court will construe the phrase "providing a signal based on the measured pressure in the chamber to a control module" as "providing a signal based upon the measured pressure in the chamber to a control module."

3. Claim 4

a. *"a control module arranged to control deployment of said occupant restraint device"*

The parties agree that the court should construe this claim to include "a control module that issues a command or commands to control whether to deploy or suppress the occupant restraint device and/or how to adjust the manner in which the occupant restraint device is deployed." (Chart at 6.) However, Plaintiff also wants to append to this construction the phrase "or suppressed." (*Id.*) This language parallels language the parties agreed upon with respect to airbag deployment rather than that of an

"occupant restraint device"; however, the agreed-upon language for airbag deployment does not include the appended phrase, "or suppressed," as proposed by Plaintiff.

Neither party offers argument for inclusion or exclusion of this phrase, and the court will not include it in its construction of this phrase. The ordinary meaning of "suppression" can mean either the opposite of "deployment" as "stopping," Dictionary.com Unabridged (v. 1.1), Random House, Inc., *available at* http://dictionary.reference.com/browse/suppress (last visited Jul. 7, 2009), or "restraining from a usual course or action," Merriam-Webster, *available at* http://www.merriam-webster.com/dictionary/suppress (last visited Jul. 7, 2009). However, throughout the specification, "suppression" is used as the opposite of "deployment." For example, one embodiment states:

> If the occupant restraint device is an airbag, e.g., a frontal airbag or a side airbag, control of the airbag deployment may entail not only suppression of the deployment but also depowered deployment, adjustment of the orientation of the airbag, adjustment of the inflation rate or inflation time and/or adjustment of the deflation rate of time.

'945 Patent col. 210 l.23-29. The specification clarifies that "suppression" is used in a sense directly opposed to that of "deployment" because the specification offers "suppression" as an alternative to "deployment" and further distinguishes "suppression" from "depowered deployment." *See Bell Communications Research, Inc. v. Vitalink Communications, Corp.*, 55 F.3d 615, 620 (Fed. Cir. 1995) ("[I]t is equally 'fundamental that claims are to be construed in light of the specifications and both are to be read with a view to ascertaining the invention.'" (quoting *United States v. Adams*, 383 U.S. 39, 49 (1966)).

Nonetheless, the specification also demonstrates that the phrase to be construed, "control . . . deployment," "may entail not only suppression of the deployment but also depowered deployment, adjustment of the orientation of the airbag, adjustment of the inflation rate or inflation time and or adjustment of the deflation rate of time." '945 Patent col. 210 l.25-29. Accordingly, "control . . . deployment" contemplates (1) "suppression," or no deployment, (2) deployment, and (3) if the airbag is deployed, various rates and modes of deployment. *See id.* However, any adjustment has to do with whether the airbag is suppressed or deployed, and does not mean that there are multiple ways in which to suppress the airbag, even if there are multiple inputs that could result in such an outcome. Moreover, the specification discusses: "In all of these cases, the position of the occupant is used to affect the deployment of the airbag either as to whether or not it should be deployed at all, the time of deployment and/or the rate of inflation." '945 Patent col. 210 l.1-4.

As a result, the parties are correct to construe the phrase as "a control module that issues a command or commands to control whether to deploy or suppress the occupant restraint device and/or how to adjust the manner in which the occupant restraint device is deployed," and the court will not construe the phrase to include "or suppressed" at the end. Because the specification shows that an airbag can be suppressed, deployed, and deployed in multiple ways, the court finds that it should not append the phrase "or suppressed" to the phrase to be construed because it would be superfluous to render the phrase "and/or how to adjust the manner in which the occupant restraint device is deployed or suppressed." The specification reveals multiple ways in which the airbag could be deployed but does not show multiple ways in which

the airbag could be suppressed, and the rules of claim construction proscribe an interpretation that renders a term superfluous. *See Primos, Inc. v. Hunter's Specialties, Inc.*, 451 F.ed 841, 848 (Fed. Cir. 2006) (holding that a court cannot interpret claim terms such that one is rendered superfluous).

Accordingly, the court will construe the phrase "a control module arranged to control deployment of said occupant restraint device" as "a control module that issues a command or commands to control whether to deploy or suppress the occupant restraint device, and if deployed, how to adjust the manner in which the occupant restraint device is deployed."

b. *"said pressure sensor generating a signal based on the measured pressure in said chamber and providing said signal to said control module"*

For the reasons stated above in Claim 1 of the '945 Patent, the court will construe the language "said pressure sensor generating a signal based on the measured pressure in said chamber and providing said signal to said control module" to mean "said pressure sensor generates a signal based upon the measured pressure in the chamber and provides that signal to the control module." *See Innova/Pure Water, Inc.*, 381 F.3d at 1119 ("Unless otherwise compelled, when different claims of a patent use the same language, we give that language the same effect in each claim.").

B. The '029 Patent

1. Claim 1

a. *"adjustable"*

Plaintiff contends that the court should construe "adjustable" to mean "automatically or passively adjustable," and add as explanation, "In the context of an airbag, 'adjustable' refers to the ability to control inflation and/or deflation of the airbag."

(Chart at 8.) Defendant argues that the court should construe "adjustable" to mean "the manner in which the component operates may be adjusted," and also to explain, "In the context of an airbag, 'adjustable' refers to the ability to adjust the manner in which the airbag is deployed by adjusting the direction of the airbag, the flow of gas into the airbag, flow of gas out of the airbag, rate of generation of gas and/or amount of generate[d] gas." (*Id.*)

Plaintiff emphasizes that it is important that "adjustable" includes the notion that the adjustment is automatic, i.e., does not require the occupant to take any action. Plaintiff also argues that Defendant's construction limits the claim by not specifying that in the context of an airbag, "adjustable" can also refer to the manner in which the airbag is suppressed. As support for its position, Plaintiff cites to the specification, which states:

> The component or device can be an airbag system including at least one deployable airbag whereby the deployment of the airbag is suppressed, for example, if the seat is occupied by a rear-facing child seat . . . . The component adjustment system and methods in accordance with the invention can automatically and passively adjust the component based on the morphology of the occupant of the seat.

'029 Patent col. 204 l.47-51, 56-59.

Defendant, however, maintains that suppression and adjustment constitute two different actions, and that neither includes the other as a sub-type. (Def.'s Br. at 18-19.) Defendant cites from the specification:

> Control of the occupant restraint device may entail suppression of deployment of the device. If the occupant restraint device is an airbag, e.g., a frontal airbag or side airbag, control of the airbag deployment may entail not only suppression of the deployment but also depowered deployment, adjustment of the orientation of the airbag, adjustment of the inflation rate or inflation time and/or adjustment of the deflation rate or time.

‘029 Patent col. 208 l.16-23. As in Claim 4 of the ‘945 Patent, the adjustment contemplates variations on deployment: (1) no deployment or suppression, (2) deployment, and (3) deployment at varying rates or varying ways.

The logic of Plaintiff is sound: an airbag can be deployed or not deployed, and if it is deployed, deployed in various ways. These variations are adjustments, and a suppressed airbag is one type of adjustment to the airbag’s deployment. The specification includes these options in the following language:

> The adjustment system may be a system for adjusting deployment of an occupant restraint device, such as an airbag. In this case, the deployment adjustment system is arranged to control flow of gas into an airbag, flow of gas out of an airbag, rate of generation of gas and/or amount of generated gas.

‘029 Patent col. 60 l.24-29. The specification further states: “The component may be an occupant restraint device such as an airbag whereby the control unit could control inflation and/or deflation of the airbag, e.g., the flow of gas into and/or out of the airbag, and/or out of the airbag, and/or the direction of deployment of the airbag.” ‘029 Patent col. 265 l.19-23. The language of the specification begins with “control inflation and/or deflation of the airbag,” which includes no inflation, or suppression. If the component is adjusted so that no air can flow into the airbag, then the result is no deployment and a suppressed airbag. However, the court finds that the construction suggested by Defendant incorporates the idea of suppression because it includes the phrase “adjust the manner in which the airbag is deployed,” which could include no deployment, or suppression. (Chart at 8.) This is further supported by the language of the specification as cited above. *See* ‘029 Patent col. 60 l.24-29; col. 208 l.16-23.

While the language of the specification specifies that certain embodiments include adjustments that are "automatically or passively adjustable," the term "adjustable" does not itself require a rendering of "automatically or passively adjustable"; the specification itself modified "adjustable" with an adjectival phrase to clarify when a component was specifically "automatically or passively adjustable." *See* '029 Patent col. 204 l.56-59 ("The component adjustment system and methods in accordance with the invention can automatically and passively adjust the component based on the morphology of the occupant of the seat."). The court will therefore decline to incorporate this adjectival phrase into its construction. *See Praxair, Inc. v. ATMI, Inc.*, 543 F.3d 1306, 1324 (Fed. Cir. 2008) ("[T]he specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.") (internal citations omitted).

Finally, Plaintiff argues that the court must include "e.g." in its construction so that its claim is not impermissibly limited to the functions listed in Defendant's proposed claim construction. The court recognizes Plaintiff's concern. See *Praxair*, 543 F.3d at 1324. The court will interpret this claim pursuant to the specification, and therefore will construe "adjustable" to be "'adjustable' means that the manner in which the component operates may be adjusted," and, "In the context of an airbag, 'adjustable' refers to the ability to control inflation or deflation of the airbag, and thereby adjust the manner in which the airbag is deployed. For example, this can include adjusting the direction of the airbag, the flow of gas into or out of the airbag, the rate of generation of gas, or the amount of generated gas."

b. *"a measurement system for measuring the pressure in said at least one chamber"*

Plaintiff contends that no additional construction is needed for this claim, whereas Defendant argues that this claim requires a means-plus-function limitation pursuant to 35 U.S.C. § 112 ¶ 6. (Chart at 9.) Plaintiff states that if the court finds a means-plus-function to be required, then it agrees with Defendant's construction. (*Id.*)

"[T]he court must see to it that disputes concerning the scope of the patent claims are fully resolved" so that such questions are not left open for a jury. *Every Penny Counts, Inc. v. Am. Express Co.*, 563 F.3d 1378, 1383 (Fed. Cir. 2009) (citing *O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1361-62 (Fed. Cir. 2008)). When a claim does not use the word "means, "there is a rebuttable presumption that § 112, ¶ 6 does not apply." *TIP Sys., LLC v. Phillips & Brooks/Gladwin, Inc.*, 529 F.3d 1364, 1374 (Fed. Cir. 2008) (citing *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1369 (Fed. Cir. 2002)). "In deciding whether the presumption has been rebutted, the focus is on whether the claim recites sufficiently definite structure." *Id.* (citing *CCS Fitness*, 288 F.3d at 1369). "This court has consistently held that '[m]eans-plus-function claiming applies only to purely functional limitations that do nor provide the structure that performs the recited function.'" *Welker Bearing Co. v. PHD, Inc.*, 550 F.3d 1090, 1095-96 (Fed. Cir. 2008) (quoting *Phillips v. AWH Corp.*, 415 F.3d 1303, 1311 (Fed. Cir. 2005)). "Further, a patentee's use of the word 'means' in claim limitation creates a presumption that 35 U.S.C. § 112 paragraph 6 applies." *Welker Bearing*, 550 F.3d at 1096 (citing *TriMed, Inc. v. Stryker Corp.*, 514 F.3d 1256, 1259 (Fed. Cir. 2008)). However, the "generic terms 'mechanism,' 'means,' 'element,' and 'device,' typically do not connote sufficiently definite structure," unless they are modified such that they have a specifically "understood meaning in the art."

Mass. Inst. of Tech. and Elec. for Imaging, Inc. v. Abacus Software, 462 F.3d 1344, 1354 (Fed. Cir. 2006) (finding that "colorant selection mechanism" did not have a sufficiently defined meaning in the art to avoid means-plus-function construction). Finally, dictionary definitions to find synonyms are an appropriate method to aid in resolving. *Id.*

Plaintiff does not use the word "means" in its claim and also argues that the '029 Patent explicitly states that means-plus-function limitations should not apply, unless stated. *See* '029 Patent col. 48 l.6-14. In response, Defendant argues that nonetheless Plaintiff's claim fails to give sufficient structure such that it can avoid a means-plus-function limitation.

This claim is properly construed in the means-plus-function format. "System" is of the same sort of generic term as "means," "mechanism," and "device," defined as "a regularly interacting or interdependent group of items forming a unified whole." Merriam-Webster, *available at* http://www.merriam-webster.com/dictionary/system (last visited Jul. 7, 2009). In addition, the modifier "measurement" offers no further indication regarding what comprises the "system." *See Mass. Inst. of Tech.*, 462 F.3d at 1354 (finding that "colorant selection mechanism did not have a sufficiently defined meaning in the art to avoid means-plus-function construction). Indeed, Plaintiff resorts to the specification in order to prevent its claim from being construed in means-plus-function format. Defendant's argument is more persuasive, as the language of this claim does not express a sufficiently definite structure. *See TIP Sys., LLC*, 529 F.3d at 1374 (citing *CCS Fitness, Inc.*, 288 F.3d at 1369). Furthermore, this language is parallel to that of

Claim 10 of the '029 Patent, which the parties agree is requires a means-plus-function limitation, except that "measurement system" takes the place of "constraining means."

As for Plaintiff's argument that it did not intend means-plus-function construction for any claims not written in that format, claim construction is a question of law for the court to decide. *See Markman*, 52 F.3d 976, 979. Finally, any citation of Plaintiff to *Watts v. XL Sys., Inc.*, 232 F.3d 877 (Fed. Cir. 2000), is distinguishable from this phrase because in *Watts*, even if the court also looked to the specification, the claim itself had sufficient structure described. *Id.* at 879, 881 (finding that "a second end formed with tapered external threads dimensioned such that one such joint may be sealingly connected directly with another such joint" had sufficient structure to avoid means-plus-function construction).[4]

Therefore, the court finds that this claim is properly construed in the means-plus-function format. Because the parties agree as to the construction of the claim if the court construes it in means-plus-function format, the court will construe "a measurement system for measuring the pressure in said at least one chamber" as follows:

Function:

measuring the pressure in the chamber or chambers.

Corresponding Structure:

a sensor or transducer.

c. *"an adjustment system arranged to adjust said at least one component"*

---

[4] The court does further bolster its argument by looking to the specification; however, only to confirm that sufficient and correct structure was provided by the claim. *Id.* Any more elaborate discussion of the use of the specification for purposes of construction in this case refer to construction, not determination regarding whether paragraph 6 of § 112 applies. *Id.*

Plaintiff proposes the construction "a system for adjusting the operation of at least one component." Defendant, however, contends that this phrase requires a means-plus-function limitation. This phrase is similar to that discussed above. "System" is of the same sort of generic term as "means," "mechanism," and "device." *See Mass. Inst. of Tech.*, 462 F.3d at 1354. Likewise, while there is a presumption that means-plus-function limitations do not apply to claims that do not include the word "means," this presumption is rebutted if the claim does not "recite[] sufficiently definite structure." *TIP Sys.*, 529 F.3d at 1374 (citing *CCS Fitness*, 288 F.3d at 1369). The modifier "adjustment" does not provide the requisite structure. *See id.*

The court construes this claim as a means-plus-function limitation. The parties then disagree as to whether the claim should include an explanation of what "adjusting" means in the context of an airbag. Plaintiff offers no construction, whereas Defendant proposes "adjusting the manner in which an occupant restraint device is deployed." Because Defendant's proposed construction makes the phrase easier to read without altering the meaning of the claim, the court will construe the function as proposed by Defendant. However, the court will use for the language describing the adjustment in the context of an airbag to parallel the language the court has construed above.

The parties also disagree regarding the construction of the structure. Primarily the dispute involves whether the structure includes a processor. Plaintiff argues that the structure includes a processer. Defendant, however, argues that the claim later specifically includes a processor, and therefore should not do so in this phrase. Defendant also argues that the specification does not disclose a structure that includes a control circuit, the corresponding wiring, transmitter, and algorithm, or a seated-state

detecting unit. In response. Plaintiff argues that these may but need not be part of the structure, but that the claim covers all possible corresponding structures. (Pl.'s Reply at 11.) The parties do not materially dispute any of the other components of the structure.

The court will substantially construe the structure of the claim according to Plaintiff's proposed construction, *see Bell Comm'ns Research, Inc.*, 55 F.3d at 620 (quoting *Environtech Corp.*, 730 F.2d at 759); however, the court will not include a processor because, as Defendant correctly identifies, this is the next component listed in the claim as comprising the vehicle of Claim 1. Plaintiff does not provide any indication that it intends to include multiple processors in the claim, and therefore the court will not construe this phrase to include one. As for the control circuit, the corresponding wiring, transmitter, and algorithm, or seated-state detecting unit, the specification, as cited by Defendant states:

> The flow of gas out of airbag **352** is controlled by exit control valve **359**. The exit valve **359** can be implemented in many different ways including, for example, a motor operated valve located adjacent the inflator and in fluid communication with the airbag or a digital flow control valve as discussed above. When control circuit **254** (FIG. **49**) determines the size and weight of the occupant, the seat position and the relative velocity of the occupant, it then determines the appropriate opening for the exit valve **359**, which is coupled to the control circuit **254**. A signal is then sent from control circuit **254** to the motor controlling this valve which provides the proper opening.

'029 Patent col. 209 l.14-25. The court will not include a control circuit, the corresponding wiring, transmitter, and algorithm, or seated-state detecting unit. While these structures are described in the specification, Plaintiff states in its brief that they need not be associated with the function of adjustment. (Pl.'s Reply at 11.) Accordingly, the court will not include these structures in its construction because they are not necessary structures to the function.

Therefore, the court will construe the "an adjustment system arranged to adjust said at least one component" as follows:

Function:

adjusting the manner in which the one or more components operate. In the context of an airbag, 'adjustable' refers to the ability to control inflation or deflation of the airbag, and thereby adjust the manner in which the airbag is deployed. For example, this can include adjusting the direction of the airbag, the flow of gas into or out of the airbag, the rate of generation of gas, or the amount of generated gas.

Corresponding Structure:

-an orifice between an inner bladder and an outer container;
-seat positioning actuators or motors;
-seat and/or headrest motors;
-adjustable airbag inflators, control valves, exit valves, and/or exit orifices;
-seatbelt pretentioner or force limiter;
-inflation combustion chamber and a pressure control system associated with an airbag.

d. *"a processor coupled to said measurement system and to said adjustment system and arranged to determine an adjustment for said at least one component by said adjustment system whereby said adjustment system is directed or controlled by said processor to adjust said at least one component to provide for the determined adjustment thereof"*

The parties agree as to the first portion of this claim construction: "The processor is connection to both the measurement system and the adjustment system. The processor: (1) determines an adjustment to the component; and (2) controls the adjustment system to adjust the component." The parties further agree that the construction should provide an explanation of what "adjustable" means in the context of an airbag. The court addressed this construction issue above, and will apply the same construction here. *See Innova/Pure Water, Inc.*, 381 F.3d at 1119 ("Unless otherwise compelled, when different claims of a patent use the same language, we give that

language the same effect in each claim."). Therefore, the court construes "a processor coupled to said measurement system . . . . " to mean:

> The processor is connection to both the measurement system and the adjustment system. The processor: (1) determines an adjustment to the component; and (2) controls the adjustment system to adjust the component. In the context of an airbag, 'adjustable' refers to the ability to control inflation or deflation of the airbag, and thereby adjust the manner in which the airbag is deployed. For example, this can include adjusting the direction of the airbag, the flow of gas into or out of the airbag, the rate of generation of gas, or the amount of generated gas."

2. Claim 2

a. *"system for adjusting deployment of said occupant restraint device"*

Plaintiff argues that no additional construction is needed; however, Defendant argues that the court should construe this claim with means-plus-function limitation. This claim also parallels that of Claim 1, the court finds that it, too, is appropriately construed as a means-plus-function limitation because "system" is of the same sort of generic term as "means," "mechanism," and "device." *See Mass. Inst. of Tech.*, 462 F.3d at 1354. Furthermore, while there is a presumption that means-plus-function limitations do not apply to claims that do not include the word "means," this presumption is rebutted if the claim does not "recite[] sufficiently definite structure." *TIP Sys.*, 529 F.3d at 1374 (citing *CCS Fitness*, 288 F.3d at 1369). Here, Plaintiff's claim does not include any modifiers or further identifying structure sufficient to prevent it from receiving a means-plus-function construction. *See id.*

The parties again also dispute whether a processor should be included in the construction of the corresponding structure, but they do not materially dispute the other components listed in the proposed construction. The court will interpret this claim in accord with the construction of the claims above on the basis of the same reasoning.

See Innova/Pure Water, Inc., 381 F.3d at 1119. Therefore, the court will construe "a system for adjusting deployment of said occupant restraint device" as follows:

> **Function:**
>
> adjusting the manner in which an occupant restraint device is deployed. In the context of an airbag, 'adjustable' refers to the ability to control inflation or deflation of the airbag, and thereby adjust the manner in which the airbag is deployed. For example, this can include adjusting the direction of the airbag, the flow of gas into or out of the airbag, the rate of generation of gas, or the amount of generated gas.
>
> **Corresponding Structure:**
>
> -an orifice between an inner bladder and an outer container;
> -seat positioning actuators or motors;
> -seat and/or headrest motors;
> -adjustable airbag inflators, control valves, exit valves, and/or exit orifices;
> -seatbelt pretentioner or force limiter;
> -inflation combustion chamber and a pressure control system associated with an airbag.

3. Claim 10

a. *"constraining means arranged in said interior for constraining flow of fluid within said interior"*

The parties agree that a means-plus-function analysis should apply to this claim, even though Plaintiff's initial position was that means-plus-function limitation should not apply to this claim. (Chart at 15; Pl.'s Br. at 30.) However, the parties disagree as to the specific construction of the means-plus-function claim. (Chart at 15.) Plaintiff argues that the function "constraining the flow of fluid within the interior of the bladder is sufficient," whereas Defendant argues that the best construction is "confining the fluid to particular portions of the bladder." (*Id.*)

The parties also disagree regarding the relevant structure. Defendant contends that Plaintiff's patent specification gives little context for use of "constraining" or any

structure associated with it. (Def.'s Br. at 29.) Defendant argues that the structure includes (1) "a second bladder contained within the bladder that has an adjustable orifice," and (2) "foam arranged in the interior of a bladder." (Chart at 15.)

The '029 Patent specification states that "a container in the seat portion has an interior containing fluid and partitioned into multiple sections between which the fluid flows as a function of pressure applied to the seat portion." '029 Patent col. 59 l.61-64. Plaintiff also cites to the specification for the proposition: "The direction of the channels or openings **455** facilitates the desired movement of the fluid in the bag **453** and constrains the fluid flow upon impact of the occupant's head against the headrest **450**." '029 Patent col. 237 l.9-12.

The specification clarifies that the constraining means both manipulates the fluid within the interior of the bladder through the channels and openings, while also confining the fluid within the bladder. *See id.* The term "constraining" demonstrates both of these actions as Plaintiff suggests, Merriam-Webster, *available at* http://www.merriam-webster.com/dictionary/constrain (last visited Jul. 7, 2009) ("to force by imposed stricture, restriction, or limitation"). In addition, the court finds that the claim language "flow of fluid" is a dynamic concept which is best rendered by use of the verb "constrain." "Constrain" preserves the dynamic notion of "flow" better than Defendant's proposed verb "confine" because "confine" connotes a single, static state not referenced by the claim. Therefore, the court will construe the function of this claim using the verb "constrain" as suggested by Plaintiff.

Next, Defendant argues that the specification does not support Plaintiff's inclusion of "foam with channels or openings" in the corresponding structure. The court

agrees that any discussion of "foam with channels or openings" in the specification is made in connection with the headrest of the seat rather than in the seat portion of the seat as relevant to this claim, and thus its inclusion in the corresponding structure for this function is not supported by the specification. The court finds that the parties do not otherwise materially disagree regarding the structure, but that Plaintiff's construction more thoroughly describes it and reflects the specification. The court will therefore use Plaintiff's proposed construction of the corresponding structure as a guide. *See Bell Comm'ns Research, Inc.*, 55 F.3d at 620 (quoting *Environtech Corp.*, 730 F.2d at 759). Accordingly, the court will construe "constraining means arranged in said interior for constraining flow of fluid within said interior" as the following:

Function:

constraining the flow of fluid within the interior of the bladder.

Corresponding Structure:

-a bladder arranged in a container;
-an adjustable orifice leading from the bladder to the outer container;
-open-cell foam arranged within the interior of the bladder and/or container.

b. *"said bladder comprises a plurality of chambers"*

While the parties did not note on their Chart that they have agreed to a construction for this phrase, Plaintiff states in its Reply that the parties have indeed done so. (Pl.'s Reply at 2.) Accordingly, the court will construe the phrase "said bladder comprises a plurality of chambers" as "partially or totally enclosed spaces." (*Id.*)

4. Claim 13

a. *"a mechanism in said interior arranged to restrict flow of the fluid from one portion of said interior to another portion of said interior"*

Plaintiff argues that no additional construction is required of this phrase; however, Plaintiff argues that if the court does construe this claim as a means-plus-function claim, then the court should construe the phrase using the term "restrict," rather than "confine," as suggested by Defendant. (Chart at 17.) Defendant contends that this claim requires a means-plus-function construction.

"[G]eneric terms 'mechanism,' 'means,' 'element,' and 'device,' typically do not connote sufficiently definite structure." *Mass. Inst. of Tech.,* 432 F.3d at 1354. While there is a presumption that means-plus-function limitations do not apply to claims that do not include the word "means," this presumption is rebutted if the claim does not "recite[] sufficiently definite structure." *TIP Sys.*, 529 F.3d at 1374 (citing *CCS Fitness*, 288 F.3d at 1369).

The court finds that means-plus-function construction is appropriate for this claim because "mechanism" is the sort of generic term construed by the Federal Circuit to indicate a means-plus-function limitation. *See Mass. Inst. of Tech.,* 432 F.3d at 1354. Nor does the claim provide sufficient structure to preclude means-plus-form construction. *See TIP Sys.*, 529 F.3d at 1374 (citing *CCS Fitness*, 288 F.3d at 1369). Finally, the language of this phrase largely parallels those above which the court has construed in the means-plus-function format.

The parties disagree as to the construction of the function and the corresponding structure. The parties again disagree regarding the construction of the word "restrict": Plaintiff argues that "restrict" is the ordinary meaning and no further construction of the claim language in required, whereas Defendant argues for the use of "confine." (Pl.'s Reply at 14; Chart at 17.) The court finds that "restricting" is the better construction

because it contemplates the flow of fluid from one bladder into another and maintains the possibility of the dynamic nature of process described, albeit limited or inhibited. Use of "confining" would limit the claim by not preserving this connotation and imputing a more static nature to the condition of the fluid.

The parties do not materially disagree regarding the construction of the corresponding structure, and the court will construe it in substantial accord with Claim 10 of the '029 Patent. The court will construe the claim as follows:

Function:

a mechanism restricting the flow of fluid from one portion of the interior of the bladder to another portion.

Corresponding Structure:

-a bladder within a container;
-open-cell foam arranged within the interior of the bladder.

C. The '516 Patent

1. Claim 14

a. *"obtaining a current position of at least a part of a seat on which the occupant is situated"*

The parties agree that the court should construe this phrase to be "detecting the . . . of at least a part of the seat on which the occupant is situated with respect to a reference position." (Chart at 19.) However, Plaintiff argues that no additional construction is required for "current position," whereas Defendant suggests the best construction to be "quantity of movement." (*Id.*) Plaintiff argues that Defendant's construction narrows Plaintiff's claim, requiring a discrete, numerical determination. In

response, Defendant argues that the specification itself calls for "detecting the quantity of movement": "The seat portion **2** is provided with a seat track position-detecting sensor **10**. The seat track position detecting sensor fulfills a role of detecting the quantity of movement of the seat **1** which is moved from a back reference position, indicated by the dotted chain line." '516 Patent col. 10 l.26-30.

As Defendant correctly notes, the phrase "detecting the quantity of movement" does not require the identification of a discrete, numerical unit of movement because the act of "detecting" does not require a calculation or an actual determination; rather, it can mean "to discover or ascertain the existence, presence, or fact of." Dictionary.com, The American Heritage Dictionary of the English Language, 4th Ed., *available at* http://dictionary.reference.com/browse/detect (last visited Jul. 7, 2009). Furthermore, while the specification uses the phrases proposed by both parties, the court finds no requirement by the specification to use one proposed construction over another. "The written description part of the specification itself does not delimit the right to exclude. That is the function and purpose of the claims," *Markman*, 52 F.3d at 980, and the court will therefore use Plaintiff's construction of the phrase "current position," *see id.* Moreover, the limitation in the claim of "with respect to a reference position" will preserve for Defendant the notion that a comparison is made when this procedure occurs. Use of "quantity of movement," or similar phrase, could circumscribe Plaintiff's claim by implying measurement of an action rather than determination of a static state. Finally, the court will also include the explanatory phrase, "In other words, detecting how far forward or backward the seat is" in order to render more clearly for the jury what is

being detected, as shown by Figure 1 of the '516 Patent. *See Embrex, Inc.*, 216 F.3d at 1347.

The court will therefore construe "obtaining a current position of at least a part of a seat on which the occupant is situated" as "detecting the current position of at least a part of the seat on which the occupant is situated with respect to a reference position. In other words, detecting how far forward or backward the seat is."

2. Claim 15

a. *"obtaining the current position of a bottom portion of the seat"*

This phrase largely parallels the phrase above. With respect to the dispute regarding "current position," the court will construe the claim to as that above as "current position." Plaintiff also seeks to add the phrase "in which the occupant or child seat sits with respect to a reference position," whereas Defendant contends that only "with respect to a reference position" is necessary. (Chart at 20.)

First, the court will construe the claim in accord with the claim above, construing "current position" to be "current position." In addition, the court will construe "the bottom portion of the seat" as "the portion of the seat in which the occupant sits or on which the child seat rests" in order to clarify what is meant by "bottom portion of the seat" so that it is not confused with the bottom portion of the seat back or the bottom portion of the bottom portion of the seat.

Therefore, the court will construe the phrase "obtaining the current position of a bottom portion of the seat" as "detecting the current position of the portion of the seat in

which the occupant sits, or on which the child seat rests, with respect to a reference position. In other words, detecting how far forward or backward the seat is."

3. Claim 18

a. *"arranging a weight sensor in connection with the seat such that the at least one morphological characteristic is the weight of the occupant"*

Plaintiff argues that the court should construe this phrase to mean "measuring a sensor output and obtaining information corresponding to the force of the occupant on the seat." (Chart at 21.) Defendant maintains that the court should construe the phrase to mean "measuring the weight of the occupant by placing a weight sensor in the seat. The weight of the occupant is a calculation of the force gravity exerts on the occupant." (*Id.*) Plaintiff contends that Defendant's construction implies the existence of an extra step, requiring a measurement and then a calculation of actual weight. In response, Defendant argues that the plain language of its construction is best, it is support by the specification and prosecution history, and that Plaintiff proposes a construction by which it would encompass Defendant's PODS, which measures pressure rather than weight.

"'[R]esort must be had in the first instance to the words of the claim,' words [which are ascribed] their ordinary meaning unless it appears the inventor used them otherwise." *Bell Comm'ns Research, Inc. v. Vitalink Comm'ns, Corp.*, 55 F.3d 615, 620 (Fed Cir. 1995) (quoting *Envirotech Corp. v. Al George, Inc.*, 730 F.2d 753, 759 (Fed. Cir. 1984)). The claim makes clear that the "weight sensor" measures something called "weight of the occupant." Plaintiff argues that the sensor does not give a weight

measurement in the way a bathroom scale might; however, the specification itself discusses an identification of the weight of the occupying item of the seat:

> The control system **1030**, e.g., a microprocessor, is arranged to receive the digital signals from the transducers **1010**, **1011** and determine the weight of the occupying item of the seat based thereon. In other words, the signals from the transducers **1010**, **1011** are processed by the control system **1030** to provide an indication of the weight of the occupying item of the seat, i.e., the force exerted by the occupying item on the seat support structure.

'516 Patent col. 27 l.64-col. 28 l.4. Nonetheless, the specification describes the action involved in this claim as follows: "An occupying item of the seat will cause a force to be exerted downward and the magnitude of this force is representative of the weight of the occupying item. Thus by measuring this force, information about the weight of the occupying item can be obtained." '516 Patent col. 20 l.65-col. 21 l.3. This description provides what is being measured by the weight sensor and takes into account the concern presented by Plaintiff's that no calculation of the weight of the occupant is performed in the ordinary sense of "weigh." However, the court finds that it need not precisely define what is meant by "weight"; the ordinary meaning of "weight" is sufficient. *See Texas Digital Systems, Inc.,* 308 F.3d at 1202 (finding that there is a heavy presumption that the words of a claim should be given their ordinary meaning). In addition, the court will address Plaintiff's concerns regarding measurement, in contrast to some kind of calibration, by using the verb "sensing" in its construction rather than "measuring."

Accordingly, the court will construe the phrase "arranging a weight sensor in connection with the seat such that the at least one morphological characteristic is the

weight of the occupant" to mean "sensing the weight of the occupant by placing a weight sensor in the seat."

4. Claim 19

a. *"controlling inflation of the airbag when deployment of the airbag is not suppressed"*

Plaintiff argues that the court should construe this claim as "controlling inflation of the airbag by adjusting operation of the airbag." (Chart at 22.) In response, Defendant argues that Plaintiff's claim is indefinite because Claim 19 incorporates the method of Claim 14, which only includes "suppressing deployment" and does not contemplate any deployment. (*Id.*)

Paragraph 2 of 35 U.S.C. § 112 requires that a patent claim "particularly point[] out and distinctly claim[] the subject matter which the applicant regards as his invention." 35 U.S.C. § 112 ¶ 2. "A determination that a patent claim is invalid for failure to meet the definiteness requirement . . . is a conclusion 'that is drawn from the court's performance of its duty as the construer of patent claims [and] therefore, like claim construction, is a question of law.'" *Bancorp Servs., L.L.C. v. Harford Life Ins. Co.*, 359 F.3d 1367, 1371 (Fed. Cir. 2004) (quoting *Atmel Corp. v. Info. Storage Devices, Inc.*, 198 F.3d 1374, 1378 (Fed. Cir. 1999)). "The terms used in the claims bear a presumption that they mean what they say and have the ordinary meaning that would be attributed to those words by persons skilled in the relevant art." *Honeywell Int'l, Inc. v. Int'l Trad Comm'n*, 341 F.3d 1332, 1338 (Fed. Cir. 2003) (citing *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002)). A claim is

presumed valid, and a court will only find a claim in definite if the "claim is insolubly ambiguous, and no narrowing construction can properly be adopted." *Honeywell*, 341 F.3d at 1338-1339 (quoting *Exxon Research & Eng'g Co. v. United States*, 265 F.3d 1371, 1375 (Fed. Cir. 2001)).

Claim 14 states: "A method for controlling a deployable component in a vehicle, comprising the steps of . . . controlling the component . . . the step of controlling the component comprising the step of suppressing deployment of the component." (Chart at 19.) Claim 19 of the '516 Patent is: "The method of claim 14, wherein the component is an airbag, the step of controlling the component comprising the step of controlling inflation of the airbag when deployment of the airbag is not suppressed." (Chart at 21-22.)

Defendants are correct in noting the patent contradiction in Plaintiff's claim. Claim 14 includes the method of suppressing deployment of a component. Claim 19 incorporates this method, including suppressing deployment of the component," but Claim 19 itself describes a method for "controlling inflration of the airbag *when deployment of the airbag is not suppressed*" (emphasis added). Under Plaintiff's own construction, Claim 19 simultaneously requires the suppression and non-suppression of the same component. There is no reconciling this contradiction, and indeed, Plaintiff appears to have dropped this claim because Plaintiff offers no argument in opposition or to clarify the interpretation to avoid this finding. The court will therefore find this claim indefinite pursuant to § 112, ¶ 2.

D. The ‘080 Patent

1. Claim 19

a. *“mounting a plurality of sensor systems at different locations on the vehicle”*

Plaintiff contends that the court need not construe this phrase; however, Defendant maintains that the court should construe the phrase as “attaching at least two sensor systems to different vehicle components which are at different locations in the vehicle.” (Chart at 22-23.) The parties primarily dispute whether “attaching” should be substituted for “mounting,” and whether “different components” should be substituted for “different locations.”

Plaintiff argues that the specification supports the use of the language in the claim, stating: “As used herein, a ‘sensor system’ includes any of the sensors listed below in the definition of ‘sensor’ as well as any type of component or assembly of components which detect, sense or measure something.” ‘080 Patent col. 9 l.64-67. The specification also states: “Another method for controlling a part of the vehicle comprises the steps of mounting a plurality of sensor systems on the vehicle, measuring a state of the sensor system or a state of the respective mounting location of the sensor system.” ‘080 Patent col. 8 l.36-40.

Defendant, however, argues that the prosecution history, specifically the reexamination of the ‘080 Patent supports its proposed construction. In particular, Defendant argues that the reexaminer rejected Plaintiff’s claim because of prior art of Patent No. 5,481,906 to Nagayoshi, et al. (“Nagayoshi Patent”), which showed “a

plurality of sensor systems (1) for the throttle position, for the air flow sensor, and for the oxygen sensor. Each of these respective sensor systems provides a measurement related to where it is mounted." (Def.'s Ex. 20 at 3 (internal citations omitted).) "Nagayoshi et al. does not disclose mounting a plurality of sensors systems at different locations on the vehicle. The sensor systems in Nagayoshi et al., e.g., a throttle position sensor, air flow sensor and oxygen sensor, are all mounted at the same locations, i.e., on the engine." (Def.'s Ex. 21 at 11.) Plaintiff argues that during been reexamination it argued that the Nagayoshi Patent did not disclose mounting a plurality of sensors at different locations because all of its components were located on the engine. (Def.'s Ex. 21 at 11.)

Plaintiff's claim construction is more persuasive. What constitutes a "location" or "component" on the vehicle is not defined here, nor does it appear to have been defined, or particularly considered during the reexamination in light of the Nagayoshi Patent. This prosecution history does not provide sufficient justification or explanation as to why it should override the ordinary meaning of the claim language. However, the court will construe the claim to include the term "attaching" in place of "mounting" as synonymous because "attaching" is plainer. *See* Merriam-Webster, *available at* http://www.merriam-webster.com/dictionary/mount[2] (last visited Jul. 7, 2009) ("mounting" has the meaning of "to attach to a support").

Accordingly, the court will construe "mounting a plurality of sensor systems at different locations on the vehicle" as "attaching at least two sensor systems at different locations on the vehicle."

b. *"diagnosing the state of the vehicle"*

The court construed this phrase in a related matter, to which Plaintiff is a party, but Defendant is not. *Auto. Tech. Int'l, Inc. v. Siemens VDO Auto. Corp.*, No. 06-15756, 2008 WL 5085389 (E.D. Mich. Nov. 25, 2008). In that case, the court interpreted this phrase to mean[5]:

> diagnose the stability and proper running and operating condition of the vehicle. The diagnosis includes normal driving operating, as well as abnormal operation including excessive angular inclination (such as two wheels being off the ground as the vehicle is about to roll over), a crash, skidding and other similar situations. The diagnosis could also be an indication that one of the parts, components, systems or subsystems of the vehicle is operating abnormally.

ATI, 2008 WL 5085389, *17. This construction was based largely on the definition of the phrase provided in Plaintiff's specification. *Id.* Defendant proposes that the court use the same construction; however, Defendant seeks to substitute for the last sentence: "While the diagnosis could also include an indication that one of the parts, components, systems or subsystems or the vehicle is operating abnormally, the diagnosis of the state of the vehicle is not a diagnosis of only one component of the vehicle." (Chart at 23.) Plaintiff proposes a lengthier and more elaborate construction:

> A diagnosis of the condition of the vehicle with respect to its stability and proper running and operating condition. For example, the state of the vehicle could be normal when the vehicle is operating properly on a highway. The state of the vehicle could be abnormal when, for example, the vehicle is experiencing excessive angular inclination (e.g., two wheels are off the ground and the vehicle is about to rollover), or the vehicle is experiencing a crash, or the vehicle is skidding, and other similar

[5] The court also denied a motion for reconsideration by Plaintiff, thus confirming this construction.

> situations. The state of the vehicle could also be abnormal if one of the parts of the vehicle, e.g., a component, system or subsystem, is operating abnormally. A diagnosis of the state of the vehicle may also entail determining whether the vehicle is stable or is about to rollover or skid and/or determining a location of an impact between the vehicle and another object. A diagnosis of the state of the vehicle may also entail determining angular acceleration of the vehicle based on the acceleration measured by accelerometers if multiple accelerometers are present as the sensor systems.

(*Id.*) As a preliminary matter, the court imports nothing resembling a *res judicata* effect to its earlier construction of a different patent, but must observe that its previous analysis was based on the ordinary meaning and direct provision of the specification. As the court reasoned before:

> Defendants' construction quotes the definition that appears within the '824 Patent. (Col. 10, lines 14-26, Defs.' Ex. 5.) The court agrees that this definition should in substance govern the meaning of the claim language. *See Irdeto Access, Inc. v. Echostar Satellite Corp.*, 383 F.3d 1295, 1300 (Fed. Cir. 2004) ("It is well-established that the patentee can act as his own lexicographer . . . .").

Id.

The parties now primarily dispute whether the court should include in its construction that "the diagnosis of the state of the vehicle is not a diagnosis of only one component of the vehicle." (Chart at 23.) The parties present further support as developed in the prosecution history of the reexamination of the '080 Patent. Plaintiff argues that this is incorrect as demonstrated by the specification: a diagnosis could indeed be of only one component of the vehicle. (Pl.'s Br. at 40-41.) Defendants, however, argue that the prior art of the Nagayoshi Patent precludes Plaintiff from claiming a diagnosis of only one component of the vehicle. (Def.'s Br. at 49-51.)

First, the court observes that the examples of normal and abnormal diagnoses of the state of the vehicle are just that–examples. The construction need not list any possible normal or abnormal state as Plaintiffs propose. Additionally, Defendant has the more persuasive argument regarding the diagnosis of the state of the vehicle "as a whole." A diagnosis of the "state of the vehicle" implies a diagnosis of multiple parts so that the entire "state," whether it is normal or abnormal, can be ascertained. This diagnosis is performed on the entire vehicle, even if input is derived from data of specific parts of the vehicle. In all other respects, the court will rely upon the definition from the specification, as construed in the previous case. Accordingly, the court construes "diagnosing the state of the vehicle" as:

> diagnose the stability and proper running and operating condition of the vehicle as a whole. The diagnosis includes normal driving operating, as well as abnormal operation including excessive angular inclination (such as two wheels being off the ground as the vehicle is about to roll over), a crash, skidding and other similar situations. The diagnosis could also include an indication that one of the parts, components, systems or subsystems of the vehicle is operating abnormally. The diagnosis of the state of the vehicle is not a diagnosis of only one component of the vehicle.

c. *"controlling the at least one part based at least in part on the diagnosed state of the vehicle"*

Plaintiff contends the court does not need to construe this phrase; however, if the court does construe the phrase, then "controlling" should be given the meaning "adjusting or regulating." (Chart at 24.) In response, Defendant maintains that the court should construe the phrase as "issuing a command or commands that operate a vehicle part in a manner that is determined at least in part by the diagnosis of the stability and

proper running and operating condition of the vehicle." (*Id.*) While Defendant argues that because the parties dispute the appropriate language, the court must construe the claim, Plaintiff offers three objections to Defendant's proposed construction because it limits Plaintiff's claim: (1) requires a direct command that is not part of the claim or specification; (2) the command is directed at only a single component; and (3) limits the definition of "diagnosed state of the vehicle." In response to Plaintiff's arguments, Defendant states (1) "controlling" and "issuing a command or commands" are not materially different phrases; (2) it will agree to the ordinary meaning construction of "the at least one part"; and (3) that its definition of diagnosis is taken directly from that of the specification.

Defendant's proposed construction would limit Plaintiff's claim as to "controlling" and "the at least one part," therefore the court will construe them in accord with Plaintiff's proposal. However, the court finds that Defendant is correct in its definition of "diagnosed state of the vehicle" as taken from the specification. Nonetheless circumscribing it as Defendant suggests could unnecessarily confuse a jury to limiting it, and therefore the court will append a exemplary clause to the claim construction.

Accordingly, the court will construe "controlling the at least one part based on the diagnosed state of the vehicle" as:

> adjusting or regulating one or more parts of the vehicle based at least in part on the diagnosis of the stability and proper running operating condition of the vehicle as a whole. The diagnosis includes normal driving operating, as well as abnormal operation including excessive angular inclination (such as two wheels being off the ground as the vehicle is about to roll over), a crash, skidding and other similar situations. The diagnosis could also include an indication that one of the parts,

components, systems or subsystems of the vehicle is operating abnormally. The diagnosis of the state of the vehicle is not a diagnosis of only one component of the vehicle.

2. Claim 27

a. *"sensing the weight of an occupying item of a seat of the vehicle"*

Plaintiff states that the court need not construe the claim because the ordinary meaning is sufficient, whereas Defendant maintains that the court should construe the claim to mean "measuring the weight of an item occupying a vehicle seat. Weight is the calculation of the force gravity exerts on the item." (Chart at 26.) Plaintiff and Defendant both raise arguments similar to previous claims regarding the interpretation of "weight," "measuring," and "sensing."

Plaintiff cites the specification for the proposition:

> The system can also include a weight sensing system coupled to a seat in the vehicle for sensing the weight of an occupying item in the seat. The weight sensing system is coupled to the processor whereby the processor controls deployment or actuation of the occupant restraint or protection device based on the state of the vehicle and the weight of the occupying item of the seat sensed by the weight sensing system.

'080 Patent col. 7 l.14-21. As with claims regarding similar language from other patents, Plaintiff argues that the precise, numerical value of weight is never calculated and to adopt Defendant's proposed construction would be to limit Plaintiff's claim. (Pl.'s Br. at 45-46.) Plaintiff further argues that "sensing" is not the same as "measuring."

In response, Defendant argues that not only does the ordinary meaning of the claim support Defendant's proposed construction, so does the patent specification, stating, for example: "By combining the outputs of the accelerometers and the strain

gages and appropriately processing the same, the mass and weight of the object occupying the seat can be determined." '080 Patent col. 24:50-53.

The court finds that the language is substantially similar to that of Claim 18 of the '516 Patent and will construe this claim in a similar manner for the reasons stated above. Therefore, the court will construe "sensing the weight of an occupying item of a seat of the vehicle" as "sensing or measuring the weight of an item occupying a seat of the vehicle." *See* '516 Patent Claim 18.

3. Claim 28

a. *"displaying an indication of the state of the vehicle"*

Plaintiff argues that this claim does not require any additional construction by the court; however, Defendant proposes the following construction: "providing the vehicle operator with a visible notification regarding the stability and proper running and operating condition of the vehicle." (Chart at 27.) Plaintiff contends that Defendant's construction limits the claim to visual indications only, whereas the claim and patent specification both encompass visual and/or auditory indications." Defendant argues that "display" is self-limiting to visual indicators because only these can be "displayed" under the ordinary meaning of the word.

The patent specification states:

> At that time, when the tire is unbalanced, the diagnostic module **170** will output a message to the driver indicating that the tire should be now be balanced as described in more detail below. The message to the driver is provided by output means coupled to or incorporated within the module **170** and may be, e.g., a light on the dashboard, a vocal tone or any other recognizable indication apparatus.

‘080 Patent col. 15 l.41-48. Even if the ordinary definition of display is typically limited to visual exhibitions, the specification demonstrates that such is not the meaning here. As shown above, the specification specifically includes that “a vocal tone” may be used. *Id.* The court finds that the ordinary meaning of the claim language is sufficient, and that it requires no further construction. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2006) (“We have frequently state that the words of a claim ‘are generally given their ordinary and customary meaning.’”) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)).

Therefore the court will construe “displaying an indication of the state of the vehicle” as “displaying an indication of the state of the vehicle.”

4. Claim 33

a. *“pattern recognition system”*

Plaintiff contends that the court should construe this phrase as “a system which classifies a pattern or patterns obtained from spatial and/or temporal data.” (Chart at 28.) Defendant, however, contends that the court should construe this phrase as “as system that implements algorithms employing neural networks, sensor fusion, correlation technologies, or fuzzy logic to receive and compare signals to patterns that are characteristic of normal and abnormal vehicle performance.” (*Id.*) Plaintiff asserts that Defendant’s proposed construction is too limiting as to the type of technology used while Defendant asserts that Plaintiff attempts to insert a means-plus-function limitation in its proposed construction and that it is too broad.

The patent specification provides the following description:

> Another method for controlling a part of the vehicle comprises the steps of mounting a plurality of sensor systems on the vehicle, measuring a state of the sensor system or a state of the respective mounting location of the sensor system, generating signals representative of the measurements of the sensor systems, inputting the signals into a pattern recognition system to obtain a diagnosis of the state of the vehicle and controlling the part based at least in part on the diagnosis of the state of the vehicle.

‘080 Patent col. 8 l.36-44. The specification also states: “The diagnostic module **170** compares the patterns of data received from each sensor individually, or in combination with data from other sensors, with patterns for which the diagnostic module has been trained to determine whether the component is functioning normally or abnormally.” ‘080 Patent col. 14 l.24-30. Because the specification demonstrates that the pattern recognition system receives signals, and then compares the data from the signals to recognized patterns, the court will use Defendant’s language of “receive and compare.” Plaintiff, however, correctly identifies that Defendant’s definition limits Plaintiff’s claim to use of particular pattern recognition technologies. The court will include these in the construction but clarify that they constitute examples.

In addition, the court will include the phrase “normal or abnormal” because inclusion is supported by the specification which describes the learning process of the pattern recognition technologies: “In all cases, the pattern recognition technology learns from examples of data characteristic of normal and abnormal component operation.” ‘080 Patent col. 16 l.14-16. Inputs from the sensors are thus compared to examples of both normal and abnormal operation.

Therefore, the court will construe "pattern recognition system" as "a system that receives and compares signals from vehicle sensors to patterns characteristic of normal or abnormal behavior through pattern recognition technology or technologies, such as, for example, neural networks, sensor fusion, or fuzzy logic, in order to diagnose the state of the vehicle."

b. *"diagnosing the state of the vehicle"*

For the reasons stated above, as the parties agree, the court will construe the language "diagnosing the state of the vehicle" to mean:

> diagnose the stability and proper running and operating condition of the vehicle as a whole. The diagnosis includes normal driving operating, as well as abnormal operation including excessive angular inclination (such as two wheels being off the ground as the vehicle is about to roll over), a crash, skidding and other similar situations. The diagnosis could also include an indication that one of the parts, components, systems or subsystems of the vehicle is operating abnormally. The diagnosis of the state of the vehicle is not a diagnosis of only one component of the vehicle.

See '080 Patent, Claim 19.

c. *"controlling the at least one part based at least in part on the diagnosed state of the vehicle"*

The parties agree that the same construction as that of Claim 19 of the '080 Patent should govern this claim. Therefore, for the reasons stated above, the court will construe the language "controlling the at least one part based at least in part on the diagnosed state of the vehicle" to mean:

> adjusting or regulating the one or more parts based at least in part on the diagnosis of the stability and proper running operating condition of the vehicle as a whole. The diagnosis includes normal driving operating, as well as abnormal operation including excessive angular inclination (such

> as two wheels being off the ground as the vehicle is about to roll over), a crash, skidding and other similar situations. The diagnosis could also include an indication that one of the parts, components, systems or subsystems of the vehicle is operating abnormally. The diagnosis of the state of the vehicle is not a diagnosis of only one component of the vehicle.

See '080 Patent, Claim 19.

E. The '824 Patent[6]

1. Claim 1

a. *"arranged to diagnose the state of the vehicle based on the measurements of said sensors"*

The parties agree that the court should construe this phrase in accord with the construction of Claim 19 of the '080 Patent. Additionally, the court will largely use the claim language to construe this claim. The language proposed by Defendant fails to account for the terms "arranged to" and "based on the measurements of said sensors." *See Praxair, Inc.*, 543 F.3d at 1324 ("[T]he specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.") (internal citations omitted). Therefore, the court will construe "arranged to diagnose the state of the vehicle based on the measurements of said sensors" as:

> arranged to diagnose the stability and proper running and operating condition of the vehicle as a whole. The diagnosis includes normal driving operating, as well as abnormal operation including excessive angular inclination (such as two wheels being off the ground as the vehicle is about to roll over), a crash, skidding and other similar situations. The diagnosis could also include an indication that one of the parts,

[6]The parties agreed at the *Markman* hearing that the court should construe similar claims in the '080 Patent and the '824 Patent in the same manner.

components, systems or subsystems of the vehicle is operating abnormally. The diagnosis of the state of the vehicle is not a diagnosis of only one component of the vehicle.

See '080 Patent, Claim 19.

b. *"arranged to control the occupant restraint system based at least in part on the diagnosed state of the vehicle"*

The parties propose similar constructions for this phrase as that of Claim 19 of the '080 Patent. Therefore, for the reasons stated above, the court will construe the phrase "arranged to control the occupant restraint system based at least in part on the diagnosed state of the vehicle" as in accord with Claim 19 of the '080 Patent and Claim 4 of the '945 Patent:

> capable of issuing a command or commands to control the occupant restraint system based at least in part on the diagnosis of the stability and proper running operating condition of the vehicle as a whole. The diagnosis includes normal driving operating, as well as abnormal operation including excessive angular inclination (such as two wheels being off the ground as the vehicle is about to roll over), a crash, skidding and other similar situations. The diagnosis could also include an indication that one of the parts, components, systems or subsystems of the vehicle is operating abnormally. The diagnosis of the state of the vehicle is not a diagnosis of only one component of the vehicle.

See '080 Patent, Claim 19; '945 Patent, Claim 4.

2. Claim 7

a. *"sensing the weight of an occupying item of the seat"*

Plaintiff argues that the court the does not need to construe this claim, whereas Defendant argues that the same construction as Claim 27 of the '080 Patent should govern. For the reasons stated above, the court will construe "sensing the weight of an

occupying item of the seat" to mean "sensing or measuring the weight of an item occupying the seat of the vehicle." *See* '080 Patent, Claim 27.

b. *"controlling the occupant restraint system based on the state of the vehicle and the weight of the occupying item of the seat sensed by said weight sensor"*

Plaintiff argues that the court the does not need to construe this claim, whereas Defendant argues that the same construction as Claim 27 of the '080 Patent and Claim 1 of the '824 should govern. For the reasons stated above in Claim 1 of this patent and Claim 19 of the '080 Patent, the court will construe "controlling the occupant restraint system based on the state of the vehicle and the weight of the occupying item of the seat sensed by said weight sensor" as:

> adjusting or regulating the occupant restraint system based at least in part on the diagnosis of the stability and proper running operating condition of the vehicle as a whole and sensing or measuring the weight of an item occupying the seat of the vehicle. The diagnosis includes normal driving operating, as well as abnormal operation including excessive angular inclination (such as two wheels being off the ground as the vehicle is about to roll over), a crash, skidding and other similar situations. The diagnosis could also include an indication that one of the parts, components, systems or subsystems of the vehicle is operating abnormally. The diagnosis of the state of the vehicle is not a diagnosis of only one component of the vehicle.

See '080 Patent, Claim 19; '824 Patent, Claim 1.

V. CLAIM CONSTRUCTION

In light of discussion and analysis set forth above, the disputed portions of the relevant claims of U.S. Patent Nos. 7,243,945 ("'945 Patent"), 7,807,029 ("'029 Patent"), 6,833,516 ("'516 Patent"), 6,484,080 ("'080 Patent") and 6,785,824 ("'824 Patent") are construed as follows:

‘945 PATENT CLAIM CONSTRUCTION CHART

Claim 1

Claim Phrase	Court’s Construction
“generating a signal based on the measured pressure in said chamber and providing said signal to said control module”	“generates a signal based upon the measured pressure in the chamber and provides that signal to the control module”

Claim 2

Claim Phrase	Court’s Construction
“providing a signal based on the measured pressure in the chamber to a control module”	“providing a signal based upon the measured pressure in the chamber to a control module”

Claim 4

Claim Phrase	Court’s Construction
“control module arranged to control deployment of said occupant restraint device”	“a control module that issues a command or commands to control whether to deploy or suppress the occupant restraint device, and if deployed, how to adjust the manner in which the occupant restraint device is deployed”
“said pressure sensor generating a signal based on the measured pressure in said chamber and providing said signal to said control module”	“said pressure sensor generates a signal based upon the measured pressure in the chamber and provides that signal to the control module”

‘029 PATENT CLAIM CONSTRUCTION CHART

Claim 1

Claim Phrase	Court’s Construction
“adjustable”	“‘adjustable’ means that the manner in which the component operates may be adjusted. In the context of an airbag, ‘adjustable’ refers to the ability to control inflation or deflation of the airbag, and thereby adjust the manner in which the airbag is deployed. For example, this can include adjusting the direction of the airbag, the flow of gas into or out of the airbag, the rate of generation of gas, or the amount of generated gas.”
“a measurement system for measuring the pressure in said at least one chamber”	**Function:** measuring the pressure in the chamber or chambers. **Corresponding Structure:** a sensor or transducer.

Claim Phrase	**Court's Construction**
"an adjustment system arranged to adjust said at least one component"	**Function:** adjusting the manner in which the one or more components operate. In the context of an airbag, 'adjustable' refers to the ability to control inflation or deflation of the airbag, and thereby adjust the manner in which the airbag is deployed. For example, this can include adjusting the direction of the airbag, the flow of gas into or out of the airbag, the rate of generation of gas, or the amount of generated gas. **Corresponding Structure**: -an orifice between an inner bladder and an outer container; -seat positioning actuators or motors; -seat and/or headrest motors; -adjustable airbag inflators, control valves, exit valves, and/or exit orifices; -seatbelt pretentioner or force limiter; -inflation combustion chamber and a pressure control system associated with an airbag.

Claim Phrase	**Court's Construction**
"a processor coupled to said measurement system and to said adjustment system and arranged to determine an adjustment for said at least one component by said adjustment system whereby said adjustment system is directed or controlled by said processor to adjust said at least one component to provide for the determined adjustment thereof"	"The processor is connected to both the measurement system and the adjustment system. The processor: (1) determines an adjustment to the component; and (2) controls the adjustment system to adjust the component. In the context of an airbag, 'adjustable' refers to the ability to control inflation or deflation of the airbag, and thereby adjust the manner in which the airbag is deployed. For example, this can include adjusting the direction of the airbag, the flow of gas into or out of the airbag, the rate of generation of gas, or the amount of generated gas."

Claim 2

Claim Phrase	Court's Construction
"a system for adjusting deployment of said occupant restraint device"	**Function:** adjusting the manner in which an occupant restraint device is deployed. In the context of an airbag, 'adjustable' refers to the ability to control inflation or deflation of the airbag, and thereby adjust the manner in which the airbag is deployed. For example, this can include adjusting the direction of the airbag, the flow of gas into or out of the airbag, the rate of generation of gas, or the amount of generated gas. **Corresponding Structure:** -an orifice between an inner bladder and an outer container; -seat positioning actuators or motors; -seat and/or headrest motors; -adjustable airbag inflators, control valves, exit valves, and/or exit orifices; -seatbelt pretentioner or force limiter; -inflation combustion chamber and a pressure control system associated with an airbag.
"constraining means arranged in said interior for constraining flow of fluid within said interior"	**Function:** constraining the flow of fluid within the interior of the bladder. **Corresponding Structure:** -a bladder arranged in a container; -an adjustable orifice leading from the bladder to the outer container; -open-cell foam arranged within the interior of the bladder and/or container.

Claim Phrase	Court's Construction
"said bladder comprises a plurality of chambers"	"partially or totally enclosed spaces"

Claim 13

Claim Phrase	Court's Construction
"a mechanism in said interior arranged to restrict flow of the fluid from one portion of said interior to another portion of said interior"	**Function:** a mechanism restricting the flow of fluid from one portion of the interior of the bladder to another portion. **Corresponding Structure:** -a bladder within a container; -open-cell foam arranged within the interior of the bladder.

'516 PATENT CLAIM CONSTRUCTION CHART

Claim 14

Claim Phrase	Court's Construction
"obtaining a current position of at least a part of a seat on which the occupant is situated"	"detecting the current position of at least a part of the seat on which the occupant is situated with respect to a reference position. In other words, detecting how far forward or backward the seat is."

Claim 15

Claim Phrase	Court's Construction
"obtaining the current position of a bottom portion of the seat"	"detecting the current position of the portion of the seat in which the occupant sits, or on which the child seat rests, with respect to a reference position. In other words, detecting how far forward or backward the seat is."

Claim 18

Claim Phrase	Court's Construction
"arranging a weight sensor in connection with the seat such that the at least one morphological characteristic is the weight of the occupant"	"sensing the weight of the occupant by placing a weight sensor in the seat"

Claim 19

Claim Phrase	Court's Construction
"controlling inflation of the airbag when deployment of the airbag is not suppressed"	Indefinite claim.

'080 PATENT CLAIM CONSTRUCTION CHART

Claims 19

Claim Phrase	Court's Construction
"mounting a plurality of sensor systems at different locations on the vehicle"	"attaching at least two sensor systems at different locations on the vehicle"

Claim Phrase	Court's Construction
"diagnosing the state of the vehicle"	"diagnose the stability and proper running and operating condition of the vehicle as a whole. The diagnosis includes normal driving operating, as well as abnormal operation including excessive angular inclination (such as two wheels being off the ground as the vehicle is about to roll over), a crash, skidding and other similar situations. The diagnosis could also include an indication that one of the parts, components, systems or subsystems of the vehicle is operating abnormally. The diagnosis of the state of the vehicle is not a diagnosis of only one component of the vehicle."
"controlling the at least one part based at least in part on the diagnosed state of the vehicle"	"adjusting or regulating the one or more parts based at least in part on the diagnosis of the stability and proper running operating condition of the vehicle as a whole. The diagnosis includes normal driving operating, as well as abnormal operation including excessive angular inclination (such as two wheels being off the ground as the vehicle is about to roll over), a crash, skidding and other similar situations. The diagnosis could also include an indication that one of the parts, components, systems or subsystems of the vehicle is operating abnormally. The diagnosis of the state of the vehicle is not a diagnosis of only one component of the vehicle."

Claims 27

Claim Phrase	Court's Construction
"sensing the weight of an occupying item of a seat of the vehicle"	"sensing or measuring the weight of an item occupying the seat of the vehicle"

Claim 28

Claim Phrase	Court's Construction
"displaying an indication of the state of the vehicle"	"displaying an indication of the state of the vehicle"

Claim 33

Claim Phrase	Court's Construction
"pattern recognition system"	"a system that receives and compares signals from vehicle sensors to patterns characteristic of normal or abnormal behavior through pattern recognition technology or technologies, such as, for example, neural networks, sensor fusion, or fuzzy logic, in order to diagnose the state of the vehicle"

Claim Phrase	Court's Construction
"diagnosing the state of the vehicle"	"diagnose the stability and proper running and operating condition of the vehicle as a whole. The diagnosis includes normal driving operating, as well as abnormal operation including excessive angular inclination (such as two wheels being off the ground as the vehicle is about to roll over), a crash, skidding and other similar situations. The diagnosis could also include an indication that one of the parts, components, systems or subsystems of the vehicle is operating abnormally. The diagnosis of the state of the vehicle is not a diagnosis of only one component of the vehicle."
"controlling the at least one part based at least in part on the diagnosed state of the vehicle"	"adjusting or regulating the one or more parts based at least in part on the diagnosis of the stability and proper running operating condition of the vehicle as a whole. The diagnosis includes normal driving operating, as well as abnormal operation including excessive angular inclination (such as two wheels being off the ground as the vehicle is about to roll over), a crash, skidding and other similar situations. The diagnosis could also include an indication that one of the parts, components, systems or subsystems of the vehicle is operating abnormally. The diagnosis of the state of the vehicle is not a diagnosis of only one component of the vehicle."

‘824 PATENT CLAIM CONSTRUCTION CHART

Claim 1

Claim Phrase	Court’s Construction
“arranged to diagnose the state of the vehicle based on the measurements of said sensors”	“arranged to diagnose the stability and proper running and operating condition of the vehicle as a whole. The diagnosis includes normal driving operating, as well as abnormal operation including excessive angular inclination (such as two wheels being off the ground as the vehicle is about to roll over), a crash, skidding and other similar situations. The diagnosis could also include an indication that one of the parts, components, systems or subsystems of the vehicle is operating abnormally. The diagnosis of the state of the vehicle is not a diagnosis of only one component of the vehicle.”
“arranged to control the occupant restraint system based at least in part on the diagnosed state of the vehicle”	“capable of issuing a command or commands to control the occupant restraint system based at least in part on the diagnosis of the stability and proper running operating condition of the vehicle as a whole. The diagnosis includes normal driving operating, as well as abnormal operation including excessive angular inclination (such as two wheels being off the ground as the vehicle is about to roll over), a crash, skidding and other similar situations. The diagnosis could also include an indication that one of the parts, components, systems or subsystems of the vehicle is operating abnormally. The diagnosis of the state of the vehicle is not a diagnosis of only one component of the vehicle.”

Claim 7

Claim Phrase	Court's Construction
"sensing the weight of an occupying item of the seat"	"sensing or measuring the weight of an item occupying the seat of the vehicle"
"controlling the occupant restraint system based on the state of the vehicle and the weight of the occupying item of the seat sensed by said weight sensor"	"adjusting or regulating the occupant restraint system based at least in part on the diagnosis of the stability and proper running operating condition of the vehicle as a whole and sensing or measuring the weight of an item occupying the seat of the vehicle. The diagnosis includes normal driving operating, as well as abnormal operation including excessive angular inclination (such as two wheels being off the ground as the vehicle is about to roll over), a crash, skidding and other similar situations. The diagnosis could also include an indication that one of the parts, components, systems or subsystems of the vehicle is operating abnormally. The diagnosis of the state of the vehicle is not a diagnosis of only one component of the vehicle."

VI. CONCLUSION

For the reasons set forth above, IT IS ORDERED that the claims of U.S. Patent No. 7,025,379, U.S. Patent No. 7,052,038, U.S. Patent No. 7, 070,202, U.S. Patent No. 7.097,201 and U.S. Patent No. 6,850,824 are CONSTRUED as set forth in the body of this order.

s/Robert H. Cleland
ROBERT H. CLELAND
UNITED STATES DISTRICT JUDGE

Dated: September 11, 2009

I hereby certify that a copy of the foregoing document was mailed to counsel of record on this date, September 11, 2009, by electronic and/or ordinary mail.

s/Lisa G. Wagner
Case Manager and Deputy Clerk
(313) 234-5522