IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

CLOUD FARM ASSOCIATES, L.P.,	:	
	:	
Plaintiff,	:	
	:	
v.	:	C.A. No. 10-502-LPS
	:	
VOLKSWAGEN GROUP OF AMERICA, INC., and ZF SACHS AG,	:	
	:	
Defendants.	:	
	:	

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MEMORANDUM OPINION

July 27, 2012
Wilmington, Delaware

STARK, U.S. District Judge:

Pending before the Court is the issue of claim construction of disputed terms found in U.S. Patent Nos. 5,529,153 (the "'153 patent") and 5,437,354 (the "'354 patent") (collectively, the "patents-in-suit").

I. BACKGROUND

Plaintiff Cloud Farm Associates, L.P. ("Plaintiff" or "Cloud Farm") filed this patent infringement action against defendants Volkswagen Group of America, Inc. ("Volkswagen") and ZF Sachs AG ("ZF Sachs") (together, "Defendants") on June 9, 2010, alleging infringement of the patents-in-suit. (D.I. 1) The patents-in-suit relate "to a technology for suppressing vehicular rolling motion, i.e the tendency of the vehicle to tilt when the vehicle turns a corner or is driven around a sharp curve." ('153 patent col.1 ll.16-19; '354 patent col.1 ll.10-13)

The parties completed briefing on claim construction on March 2, 2012. (*See* D.I. 148) The Court held a *Markman* hearing on May 29, 2012. *See* Markman Hr'g Tr., May 29, 2012 (D.I. 158) (hereinafter "Tr.").

II. LEGAL STANDARDS

"It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (internal quotation marks omitted). Construing the claims of a patent presents a question of law. *See Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 977-78 (Fed. Cir. 1995), *aff'd*, 517 U.S. 370, 388-90 (1996). "[T]here is no magic formula or catechism for conducting claim construction." *Phillips*, 415 F.3d at 1324. Instead, the court is free to attach the appropriate weight to appropriate sources "in light of the statutes and policies that inform

patent law." *Id.*

"[T]he words of a claim are generally given their ordinary and customary meaning . . . [which is] the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." *Id.* at 1312-13 (internal citations and quotation marks omitted). "[T]he ordinary meaning of a claim term is its meaning to the ordinary artisan after reading the entire patent." *Id.* at 1321 (internal quotation marks omitted). The patent 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." *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996).

While "the claims themselves provide substantial guidance as to the meaning of particular claim terms," the context of the surrounding words of the claim also must be considered. *Phillips*, 415 F.3d at 1314. Furthermore, "[o]ther claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment . . . [b]ecause claim terms are normally used consistently throughout the patent . . . ." *Id.* (internal citation omitted).

It is likewise true that "[d]ifferences among claims can also be a useful guide . . . . For example, the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim." *Id.* at 1314-15 (internal citation omitted). This "presumption is especially strong when the limitation in dispute is the only meaningful difference between an independent and dependent claim, and one party is urging that the limitation in the dependent claim should be read into the independent claim." *SunRace Roots Enter. Co., Ltd. v. SRAM Corp.*, 336 F.3d 1298, 1303 (Fed. Cir. 2003).

It is also possible that "the specification may reveal a special definition given to a claim

term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor's lexicography governs." *Phillips*, 415 F.3d at 1316. It bears emphasis that "[e]ven when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction." *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004) (internal quotation marks omitted), *aff'd*, 481 F.3d 1371 (Fed. Cir. 2007).

In addition to the specification, a court "should also consider the patent's prosecution history, if it is in evidence." *Markman*, 52 F.3d at 980. The prosecution history, which is "intrinsic evidence," "consists of the complete record of the proceedings before the PTO [Patent and Trademark Office] and includes the prior art cited during the examination of the patent." *Phillips*, 415 F.3d at 1317. "[T]he prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." *Id.*

A court also may rely on "extrinsic evidence," which "consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises." *Markman*, 52 F.3d at 980. For instance, technical dictionaries can assist the court in determining the meaning of a term to those of skill in the relevant art because such dictionaries "endeavor to collect the accepted meanings of terms used in various fields of science and technology." *Phillips*, 415 F.3d at 1318. In addition, expert testimony can be useful "to ensure that the court's understanding of the technical aspects of the patent is consistent with that

of a person of ordinary skill in the art, or to establish that a particular term in the patent or the prior art has a particular meaning in the pertinent field." *Id.* Nonetheless, courts must not lose sight of the fact that "expert reports and testimony [are] generated at the time of and for the purpose of litigation and thus can suffer from bias that is not present in intrinsic evidence." *Id.* Overall, while extrinsic evidence "may be useful" to the court, it is "less reliable" than intrinsic evidence, and its consideration "is unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence." *Id.* at 1318-19.

Finally, "[t]he construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998). It follows that "a claim interpretation that would exclude the inventor's device is rarely the correct interpretation." *Osram GmbH v. Int'l Trade Comm'n*, 505 F.3d 1351, 1358 (Fed. Cir. 2007).

III. CONSTRUCTION OF DISPUTED TERMS

A. "partially filled with hydraulic fluid"[1]

Plaintiff's Proposed Construction: "partially but not completely filled with hydraulic fluid"

Volkswagen's Proposed Construction: No construction is necessary. However, if the Court construes this term it should be construed as "partially, but not completely filled with hydraulic fluid"[2]

ZF Sachs's Proposed Construction: "partially, but not completely filled with hydraulic fluid"

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[1]This disputed term appears in claims 1-5, 8-12, and 16 of the '354 patent.

[2]Volkswagen suggested this proposed construction at the *Markman* hearing. (*See* Tr. at 119)

Court's Construction: "partially, but not completely filled with hydraulic fluid"

The parties agree upon the construction of this disputed term.[3] Accordingly, the Court will adopt the parties' agreed upon construction.

B. "a chamber having two portions partially filed with hydraulic fluid"[4]

Plaintiff's Proposed Construction: "the chamber is divided into two portions, wherein the two portions taken together are partially but not completely filled with hydraulic fluid"[5]

Volkswagen's Proposed Construction: No construction is necessary. Rather, the Court should apply the plain and ordinary meaning of this term, which is "[chamber] having two portions, each incompletely filled with hydraulic fluid"

ZF Sachs's Proposed Construction: "the chamber is divided into two portions, wherein the two portions taken together are partially but not completely filled with hydraulic fluid"

Court's Construction: "the chamber is divided into two portions, wherein the two portions taken together are partially but not completely filled with hydraulic fluid"

As an initial matter, the Court concludes that it must construe this term because the parties do not agree on its meaning and their dispute appears to be material. *See O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., Ltd.*, 521 F.3d 1351, 1361 (Fed. Cir. 2008) (stating sometimes "the 'ordinary' meaning of a term does not resolve the parties' dispute, and claim construction requires the court to determine what claim scope is appropriate in the context of the patents-in-suit"). Specifically, the parties disagree about whether one portion of the chamber can

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[3]Although Volkswagen asserts "plain and ordinary meaning" as its primary argument, at the *Markman* hearing Volkswagen indicated that it was "fine" with the other parties' proposed construction and could "live with" that construction. (Tr. at 118-19)

[4]This disputed term appears in claim 16 of the '354 patent.

[5]Although Plaintiff had initially proposed a different construction, Plaintiff adopted ZF Sachs's construction in its reply brief. (*See* D.I. 144 at 4)

be completely filled with hydraulic fluid – ZF Sachs and Plaintiff contend that it can, whereas Volkswagen contends it cannot. The Court concludes that one portion of the chamber may be completely filled with hydraulic fluid and, accordingly, will adopt the construction proposed by ZF Sachs and Plaintiff.

Volkswagen contends that Figure 2 of the '354 patent does not show either portion of the chamber as being completely filled with hydraulic fluid and, therefore, argues that the Court should not adopt the other parties' proposed construction. (D.I. 148 at 9; Tr. at 118-19) However, the Court declines to limit the claim to the embodiment shown in Figure 2, as there is nothing in the claim language that would justify doing so. *See MBO Labs., Inc. v. Becton, Dickinson & Co.*, 474 F.3d 1323, 1333 (Fed. Cir. 2007) ("[P]atent coverage is not necessarily limited to inventions that look like the ones in the figures. . . . To hold otherwise would be to import limitations onto the claim from the specification, which is fraught with 'danger.'"); *see also Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004) ("[T]he claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction.").

C. "seal"/"sealing"/"seals"[6]

Plaintiff's Proposed Construction: "minimizing the flow of hydraulic fluid therethrough"

Volkswagen's Proposed Construction: "closing to prevent egress of hydraulic fluid"

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[6]These disputed terms appear in claims 1, 8, and 16 of the '354 patent and in claims 1 and 3 of the '153 patent.

ZF Sachs's Proposed Construction: "stopping the flow of hydraulic fluid"[7]

Court's Construction: "stopping the flow of hydraulic fluid"

D. "prevent flow of said fluid"[8]

Plaintiff's Proposed Construction: "hinder the flow of said fluid"

Volkswagen's Proposed Construction: "shut off any further flow of said hydraulic fluid"

ZF Sachs's Proposed Construction: "to stop flow of hydraulic fluid"[9]

Court's Construction: "to stop flow of said hydraulic fluid"

E. "preventing tilting of the frame or body of the vehicle"[10]/"preventing tilting of the body of the vehicle[11]

Plaintiff's Proposed Construction: "hinder the vehicle body's ability to tilt or lean away from a vertical axis"

Volkswagen's Proposed Construction: "stop any further tilting of the frame or body of the vehicle"

ZF Sachs's Proposed Construction: "to stop the frame or body of the vehicle from tilting"

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[7]For various claims of the patents-in-suit, ZF Sachs contends that the Court should not only construe the word "seal," "seals," or "sealing," but also construe additional surrounding claim language. (*See* D.I. 144 at 2, 24) Plaintiff and Volkswagen instead propose only constructions for the words "seal," "seals," or "sealing." The Court adopts the approach of Plaintiff and Volkswagen.

[8]This disputed term appears in claims 1 and 8 of the '354 patent and claim 1 of the '153 patent.

[9]ZF Sachs proposed various additions to its main construction based on the surrounding claim language; however, the Court declines to construe the additional claim language.

[10]This disputed term appears in claim 1 of the '354 patent.

[11]This disputed term appears in claim 8 of the '354 patent.

Court's Construction: "to stop the frame or body of the vehicle from tilting"

F. "prevent movement of the piston and further tilting of the body of the vehicle"[12]

Plaintiff's Proposed Construction: "hinder movement of piston and further tilting of the body of the vehicle"

Volkswagen's Proposed Construction: "stop any further movement of the piston and any further tilting of the body of the vehicle"

ZF Sachs's Proposed Construction: "stop movement of the piston and stop tilting of the body of the vehicle"

Court's Construction: "stop any further movement of the piston and any further tilting of the body of the vehicle"

The parties' disagreements over these interrelated terms concern whether, upon sensing excessive vehicle tilt, the system claimed in the patents-in-suit stops (as argued by Defendants) or merely reduces (as argued by Plaintiff) the flow of hydraulic fluid from one portion of the tilt controller to the other, the movement of the piston, and the tilting of the vehicle body. The Court's constructions are supported by language of the claims. (*See* '354 patent col.6 ll.32-35; *id.* at col.7 ll.9-11; '153 patent col.10 ll.59-63) Claim 1 of the '354 patent states, in pertinent part: "to seal said opening when the sensing means is activated at a predetermined tilt position of the body to ***prevent*** flow of said fluid from the lower portion of the chamber into the upper portion of the chamber and thus ***prevent*** tilting of the frame or body of the vehicle." ('354 patent col.6 ll.30-35) (emphasis added)

The Court's constructions are also supported by the specification. The terms "seal," "seals," and "sealing" are used consistently in the specification to mean completely stopping the

[12]This disputed term appears in claim 1 of the '153 patent.

flow of hydraulic fluid. Once the flow of hydraulic fluid stops, the specification explains that any tilting or movement of the piston or vehicle body also stops. (*See id.* at col.4 ll.9-25, ll.48-60; *id.* at col.4 ll.62-col.5 ll.3; *id.* at col.8 ll.28-36; *id.* at col.8 ll.66-col.9 ll.7; *id.* at col.9 ll.36-43; *id.* at col.9 ll.53-57; *id.* at col.10 ll.23-28) For instance, when the vehicle tilt reaches a predetermined limit, the "seal" 40 closes the opening 34 in lockplate 32 to prevent the discharge of any hydraulic fluid, thereby preventing the piston 31 from moving upward, and thereby restraining any further tilt of the body of the vehicle. (*See id.* at col.4 ll.48-60) Each embodiment in the '354 patent and the '153 patent also discloses that, upon sensing of excessive tilt, the opening in the plate is closed so that fluid flow is shut off. (*See id.* at col.4 ll.20-26; *id.* at col.5 ll.34-36; *id.* at col.5 ll.67 - col.6 ll.5; '153 patent col.6 ll.43-47; *id.* at col.7 ll.2-10; *id.* at col.8 ll.66- col.9 ll.7; *id.* at col.9 ll.36-43; *id.* at col.9 ll.53-57; *id.* at col.10 ll.23-26) The words "hinder flow" never appear in the specification and neither of the patents-in-suit explains how it is possible to accomplish partial sealing. (Tr. at 87)

Contrary to Plaintiff's argument, the specification of the '354 patent does not disclose an embodiment in which fluid flow is merely hindered. Specifically, Plaintiff's contention that Figure 2 of the '354 patent illustrates an embodiment in which perfect closure many not be effected is unpersuasive, as Figure 2 shows that seal 40 has a larger diameter, which closes the opening 34. Plaintiff's argument that column 5 of the '354 patent discloses an embodiment where fluid flow is not completely prevented is likewise unpersuasive. (*See* Tr. at 49) In support of its argument, Plaintiff points to the following language describing an embodiment: "the opening 34 can be adjusted in size to provide shock absorptions. The smaller the opening, the more resistance there is to fluid flow in the reservoir chamber." ('354 patent col.5 ll.59-62)

However, the '354 patent goes on to describe this embodiment as completely stopping and not merely hindering flow: "Should a tilt be encountered as a car goes around a turn the sensor will activate the solenoid which will close the seal 40 so that there is no longer any opening in the piston assembly and lockplate. Fluid in the bottom chamber can then no longer enter the upper chamber and movement of the body downwardly is prevented." (*Id.* at col.5 ll.67 - col.6 ll.5)

The Court's constructions are further supported by the prosecution history. During prosecution of the '354 patent, the inventor attempted to claim a system that merely reduces fluid flow, describing the sealing means of claim 18 (which led to issued claim 16) as "adapted, when activated, to prevent ***any substantial flow*** of fluid from one portion to the other portion of the chamber." (D.I. 127, Ex. B-1) (emphasis added) The patent examiner rejected application claim 18 as indefinite due to the ambiguity and vagueness of the phrase "any substantial flow." (*Id.*, Ex. B-2) In response, the inventor amended application claim 18 by deleting the word "substantial," resulting in a claim that read: "to prevent ***any flow*** of said fluid" and described the invention as a whole as having sealing to "prevent any fluid flow and thus prevent any further movement of the piston." Additionally, the inventor noted that the patented invention creates stability of the vehicle both when moving up and down and when rounding curves due to the fact that "no signals are transmitted to a sealing means to prevent fluid flow" – further evidence that fluid flow is completely stopped and not merely hindered. (*See* D.I. 127, Ex. B-3 at 8-9; Tr. at 94-95)

Plaintiff contends that the doctrine of claim differentiation requires that claims 1 and 8 of the '354 patent allow some fluid to pass through opening 32 based on the words "prevent flow" used in these claims, as opposed to the words "prevent ***any*** flow" used in claim 16. (*See* D.I. 125

at 12-13; Tr. at 52) However, there are numerous meaningful differences between claims 1 and 8, on one hand, and claim 16, on the other. For instance, claim 16 does not require (1) the piston to be attached to the vehicle axle, (2) "means for moving the sealing means," or (3) the sensing means to be "activated at a predetermined tilt position of the body," while claims 1 and 8 do contain these requirements. Thus, the doctrine of claim differentiation is unavailing for Plaintiffs. *See Andersen Corp. v. Fiber Composites, LLC*, 474 F.3d 1361, 1370 (Fed. Cir. 2007); *Intermatic Inc. v. Lamson & Sessions* Co., 273 F.3d 1355, 1364 (Fed. Cir. 2001), *vacated on other grounds*, 537 U.S. 1016 (2002).

G. "a plate within said chamber having a substantially central opening separating said fluid within the chamber into a lower portion and an upper portion"[13]

Plaintiff's Proposed Construction: "a plate disposed in the chamber having a substantially central opening in the plate, the plate separates said fluid within the chamber into a lower portion and an upper portion"[14]

Volkswagen's Proposed Construction: No construction is necessary. Court should apply the plain and ordinary meaning of this term.

ZF Sachs's Proposed Construction: "a plate disposed in the chamber such that the substantially central opening in the plate is the only flow path between the hydraulic fluid above the plate and hydraulic fluid below the plate"

Court's Construction: "a plate disposed in the chamber having a substantially central opening in the plate, the plate separates said fluid within the chamber into a lower portion and an upper portion"

H. "a plate within said chamber having at least one opening separating the fluid within the chamber into two portions"[15]

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[13]This disputed term appears in claim 1 of the '354 patent.

[14]Plaintiff proposed this construction in its reply brief. (*See* D.I. 144 at 4)

[15]This disputed term appears in claim 8 of the '354 patent.

Plaintiff's Proposed Construction: "a plate disposed in the chamber with at least one opening in the plate, through which fluid may pass from one portion of the chamber to the other"

Volkswagen's Proposed Construction: No construction is necessary. Court should apply the plain and ordinary meaning of this term.

ZF Sachs's Proposed Construction: "a plate having at least one opening and disposed in the chamber such that the plate separates the hydraulic fluid into two portions, one below the plate and one above the plate, and wherein at least one opening in the plate is the only flow path for the hydraulic fluid between the two portions"

Court's Construction: "a plate disposed in the chamber with at least one opening in the plate, through which fluid may pass from one portion of the chamber to the other"

As an initial matter, the Court concludes that it must construe these terms because the parties do not agree on their meanings and the parties' disputes appear to be material. *See O2 Micro*, 521 F.3d at 1361. Specifically, the parties dispute whether there can be more than one "substantially central opening" and whether this opening must be the only fluid-flow path. ZF Sachs contends that there can only be one substantially central opening and that it must be the only path for hydraulic fluid flow (*see* D.I. 128 at 11), whereas Plaintiff and Volkswagen contend that there are no such limitations (*see* D.I. 125 at 7).

The Court's constructions are supported by the plain language of the claims. (*See* '354 patent col.6 ll.23-35; *id.* at col.6 ll.68- col.7 ll.1-2) When the claims of a patent are not limited, the Court should not read in additional limitations without clear, unmistakable contextual support in the specification. *See generally Biovail Corp. Int'l v. Andrx Pharma., Inc.*, 239 F.3d 1297, 1301 (Fed. Cir. 2001). There is no clear support in the specification to import ZF Sach's additional limitations requiring that the substantially central opening be the only flow path.

Although the specification does describe instances where the plate only has one substantially central opening which is the only fluid-flow path (*see, e.g.*, '354 patent col.3 ll.12-27; *id.* at col.4 ll.19-26), the Court declines to import these limitations from the specification into the claims, *see Golight, Inc. v. Wal-Mart Stores, Inc.*, 355 F.3d 1327, 1331 (Fed. Cir. 2004).

I. "means within said chamber to separate said fluid within the chamber into two portions"[16]

Plaintiff's Proposed Construction:
Function: "separating said fluid within said chamber into two portions"
Structure: "a plate within said chamber, and equivalents thereof"

Volkswagen's Proposed Construction:
Function: "separating said fluid within said chamber into two portions"
Structure: "a plate within said chamber, or an equivalent of the foregoing structure"

ZF Sachs's Proposed Construction:
Function: "separating the hydraulic fluid in the chamber into two portions"
Structure: "a plate within the chamber, and equivalents thereof"

Court's Construction:
Function: "separating said fluid within said chamber into two portions"
Structure: "a plate within said chamber, and equivalents thereof"

The parties substantially agree on the construction of this means-plus-function claim term. Accordingly, the Court adopts a construction that reflects the parties' agreement and is grammatically correct.

J. "sealing means"[17]

Plaintiff's Proposed Construction:
Function: "sealing"

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[16]This term appears in claim 16 of the '354 patent.

[17]This disputed term appears in claims 1, 8, and 16 of the '354 patent and claim 1 of the '153 patent.

Structure: "a valve, and equivalents thereof"

Volkswagen's Proposed Construction:
Function: "sealing"
Structure: The specification of the '354 patent does not describe the structure for performing the function of sealing.

ZF Sachs's Proposed Construction:
Function: "sealing"
Structure: "seal or shut off valve and equivalents thereof"

Court's Construction:
Function: "sealing" (as construed *supra*)
Structure: "seal or shut-off valve and equivalents thereof"

The parties agree that "sealing means" is a means-plus-function term and that the function is "sealing" (as the Court has construed the term *supra*). The parties disagree as to which structure the patents-in-suit describe as corresponding to this claim element and whether that structure is a sufficiently specific structure to satisfy 35 U.S.C. § 112 ¶ 6.

The Court's construction of the structure as "seal or shut off valve and equivalents thereof" is supported by the specifications of both patents-in-suit. The specifications of the '354 patent and '153 patent identify a shut-off valve as a sealing means. (*See* '354 patent col.3 ll.15-18; '153 patent col.4 ll.2-3) Additionally, Figure 2 of the '354 patent illustrates a valve that acts as a sealing means. (*See* '354 patent, Fig. 2) Thus, both of the patents-in-suit adequately disclose a structure for the function of "sealing."

K. "means for sensing the tilt" terms[18]

Plaintiff's Proposed Construction:

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[18]In claims 1 and 8 of the '354 patent and claims 1-3 of the '153 patent, the term reads: "means for sensing the tilting movement of said vehicle." In claim 16 of the '354 patent, the term reads: "means for sensing tilting of one of said structural elements towards said other structural element."

Function: "sensing lateral acceleration of the vehicle body"
Structure: "a tube in the shape of a wide shallow U and mounted crosswise of the vehicle, with: (1) two sets of contacts at the opposite ends of the tube to be engaged by mercury, and (a) a pool of mercury within the tube, or (b) two balls of mercury, each within a glass envelope at each end of the U-shaped tube or (2) two crimped portions to the left and right of the center of the tube which are each parts of two electrical circuits, and a ball bearing free to roll within the tube, which can complete the electrical circuit at one of the crimped portions, and/or equivalents of any of the foregoing"

Volkswagen's Proposed Construction:
Function: "sensing sideways tilting of the vehicle body toward the vehicle axle, excluding the sensing of acceleration exerted on the vehicle body"
Structure: "a tube in the shape of a wide shallow U and mounted crosswise of the vehicle, with (1) two sets of electrical contacts at the opposite ends of the tube to be engaged by mercury, and (a) a pool of mercury within the tube, or (b) two balls of mercury, each within a glass envelope at each end of the U-shaped tube; or (2) two crimped portions to the left and right of the center of the tube which are each parts of two electrical circuits, and a ball bearing free to roll within the tube, which can complete the electrical circuit at one of the crimped portions, or an equivalent of any of the foregoing structures (1)(a), (1)(b), or (2), but excluding acceleration sensors for monitoring acceleration exerted on the vehicle body"

ZF Sachs's Construction:
Function: "sensing tilting movement of the vehicle"
Structure: "a switch consisting of (1) a wide, shallow U-shaped tube mounted crosswise of the vehicle and having either (a) a pool of mercury in the tube and two sets of electrical contacts at opposite ends of the tube to be engaged by the mercury for completing an electrical circuit, or (b) a glass envelope with a ball of mercury and a pair of electrical contacts therein at either end of the tube engagement of the ball of mercury with contacts completing an electrical circuit, and (2) a cylindrical tube mounted crosswise of the vehicle with a ball bearing free to roll within the tube, the tube being crimped at two points, one to the left of center and one to right of center, the crimps including electrical contacts to be engaged by the ball bearing for completing an electrical circuit [and] equivalents thereof"

Court's Construction:
Function: "sensing tilting movement of the vehicle"
Structure: "a tube in the shape of a wide shallow U and mounted crosswise of the vehicle, with (1) two sets of electrical contacts at the opposite ends of the tube to be engaged by mercury, and (a) a pool of mercury within the tube, or (b) two balls of mercury, each within a glass envelope at each end of the U-shaped tube; or (2)

> two crimped portions to the left and right of the center of the tube which are each parts of two electrical circuits, and a ball bearing free to roll within the tube, which can complete the electrical circuit at one of the crimped portions, or an equivalent of any of the foregoing structures"

The parties agree that these terms are means-plus-function terms within the meaning of 35 U.S.C. § 112 ¶ 6. Additionally, although the parties use slightly different wording, they also agree on some of the corresponding structures, which are discussed in the patents' descriptions of the U-shaped tube with electrical contacts at its ends and a mercury pool, mercury balls, or a ball bearing. (*See* '354 patent col.2 ll.36-46, 52-67; '153 patent col.3 ll.20-39, 35-50) The parties disagree, however, on (1) whether the inventor disclaimed certain structures during prosecution and (2) the correct construction of the recited function.

The Court concludes that the inventor did not expressly disclaim any structures and, consequently, prosecution history estoppel does not apply. Volkswagen contends that during prosecution of what eventually was issued as the '354 patent, the inventor disclaimed certain structures when he stated that the patented invention was distinct from various prior art references and made amendments to the claims of the '354 patent to reflect these distinctions. (*See* D.I. 126 at 8-11) Yet claims 1 and 8 of the '354 patent originally recited "means for sensing the tilting movement of said vehicle" and these claim elements were never amended. Moreover, the inventor never described any structural distinctions between his patented invention and the prior art which he disclaimed.

The Court's construction of the function is supported by the plain language of the claims. Claim 1 of the '354 patent states that the claimed invention addresses the "tilting" movement of the vehicle, not lateral acceleration. (*See* '354 patent col.6 ll.12-35) Additionally, the Court's

construction is supported by the specification, which discloses that each of the recited structures senses a predetermined tilt position of the axle with respect to the body of the vehicle at which the sensor completes a circuit for activating a switch for preventing flow of hydraulic fluid to prevent further vehicle tilt. (*See id.* at col.2 ll.24-35; *id.* at col.3 ll.23-27; *see also id.* at col.2 ll.68-col.3 ll.4) The Court's construction is also supported by the prosecution history. (*See* D.I. 127, Ex. B-5 (inventor distinguishing invention from prior art that had lateral acceleration sensor, noting that prior art did not "disclose the specific tilt sensing means")) Lateral acceleration is not a form of "tilting movement."

L. "means for moving the sealing means to seal"[19]

Plaintiff's Proposed Construction:
Function: "moving the sealing means to seal"
Structure: "a solenoid and a spring, and equivalents thereof"

Volkswagen's Proposed Construction:
Function: "moving the sealing means"
Structure: "a solenoid, a rod, and a spring; or an equivalent of the foregoing combination"

ZF Sachs's Proposed Construction:
Function: "moving the sealing means to seal the opening in the plate"
Structure: "a solenoid, rod, and spring combination, and equivalents thereof"

Court's Construction:
Function: "moving the sealing means to seal"
Structure: "a solenoid, a rod, and a spring; or an equivalent of the foregoing combination"

M. "electromagnetic means to move said sealing means to seal"[20]

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[19]This disputed term appears in claim 1 of the '153 patent and claims 1 and 8 of the '354 patent.

[20]This disputed term appears in claim 9 of the '354 patent.

Plaintiff's Proposed Construction:
Function: "moving the sealing means to seal"
Structure: "a solenoid, a rod, and a spring; or an equivalent of the foregoing"

Volkswagen's Proposed Construction:
Function: "moving the sealing means"
Structure: "a solenoid, a rod, and a spring; or an equivalent of the foregoing"

ZF Sachs's Proposed Construction:
Function: "moving the sealing means"
Structure: "a solenoid, rod, and spring combination, and equivalents thereof"

Court's Construction:
Function: "moving the sealing means to seal"
Structure: "a solenoid, a rod, and a spring; or an equivalent of the foregoing"

N. "electromagnetic means for operating said sealing means"[21]

Plaintiff's Proposed Construction:
Function: "operating said sealing means"
Structure: "a solenoid and a spring, or an equivalent of the foregoing combination"

Volkswagen's Proposed Construction:
Function: "operating said sealing means"
Structure: "a solenoid, a rod, and a spring; or an equivalent of the foregoing"

ZF Sachs's Proposed Construction:
Function: "operating the sealing means"
Structure: "a solenoid, rod, and spring combination, and equivalents thereof"

Court's Construction:
Function: "operating said sealing means"
Structure: "a solenoid, a rod, and a spring; or an equivalent of the foregoing"

The parties agree that these are all means-plus-function terms within the meaning of 35

[21]This disputed terms appears in claim 4 of the '354 patent.

U.S.C. § 112 ¶ 6; however, the parties dispute the proper functions and the structure.

The Court's constructions of the functions are supported by the plain language of the claims. (*See* '354 patent col.6 ll.30-31; *id.* at col.7 ll.4-5; *id.* at col.7 ll.14-16; *id.* at col.6 ll.44-45; '153 patent col.10 ll.55-56) The claims use the words "moving the sealing means to seal" and, thus, "to seal" is part of the disclosed functions of the claims. Claim 4 of the '354 patent explicitly discloses the function as being "operating said sealing means." ('354 patent col.6 ll.44-45)

The Court's construction of the structure is supported by the specification. The parties agree that the corresponding structure includes a solenoid and a spring, but disagree on whether it also includes a rod. The Court concludes that the disclosed structure includes a rod as the patents-in-suit explicitly state: "[t]he solenoid device 36 is composed of a rod or piston 33 that fits within the solenoid 36." ('354 patent col.4 ll.61-62; '153 patent col.7 ll.11-13)

O. "predetermined tilt position of the body"[22]/"set tilt position of the body"[23]

Plaintiff's Proposed Construction: "value at which lateral acceleration of the vehicle causes the sensing means to activate"

Volkswagen's Proposed Construction: No construction necessary. Court should apply the ordinary meaning of this term – "tilt position of body that is determined/set in advance."

ZF Sachs's Proposed Construction: "the predetermined degree of tilt of the body of the vehicle at which the sensing means is activated"

Court's Construction: "the predetermined degree of tilt of the body of the vehicle at which the sensing means is activated"

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[22]This disputed term appears in claim 1 of the '354 patent.

[23]This disputed term appears in claim 8 of the '354 patent and claim 1 of the '153 patent.

As an initial matter, the Court concludes that it must construe this term because the parties do not agree on its meaning and their dispute appears to be material. *See O2 Micro*, 521 F.3d at 1361.

The Court's construction is supported by the plain language of the claims. (*See* '354 patent col.6 ll.28-35; *id.* at col.7 ll.8-11; '153 patent col.10 ll.56-59) The Court's construction is also supported by the specification, which states "so that the tilt of said axle increases beyond a predetermined amount, the sensing means is activated to send a signal to the tilt controlling means so that further tilt of the body or frame of the vehicle is prevented." (*See* '354 patent col.2 ll.24-35)

P. "electrical switch"[24]/"means [including] an electrical switch"[25]

Plaintiff's Proposed Construction: "a circuit element that may alter the circuit's voltage and/or current"

Volkswagen's Proposed Construction: "A circuit element that has two states, on and off. When on, a switch allows electrical signals to pass unimpeded. When off, it does not allow electrical signals to pass."

ZF Sachs's Proposed Construction: "a circuit element that has two states, on and off; when on, a switch allows electrical current to pass unimpeded, and when off, it does not allow electrical signals to pass"

Court's Construction: "A circuit element that has two states, on and off. When on, a switch allows electrical signals to pass unimpeded. When off, it does not allow electrical signals to pass."

The Court's construction is supported by the specification, which describes a binary on-off switch in which the mercury ball (or mercury pool or ball bearing) either (1) engages the

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[24]This disputed term appears in claims 2, 4, 9, and 11 of the '354 patent.

[25]This disputed term appears in claim 4 of the '354 patent.

electrical contacts at the end of the sensing tube, so that current flows, or (2) does not engage the electrical contacts, so that current does not flow. (*See* '354 patent col.2 ll.36-67; *id.* at col.5 ll.30-50) Contrary to Plaintiff's assertion, nothing in the '354 patent discusses or suggests a middle state in which there is some level of engagement such that only limited current/voltage is flowing. Additionally, the Court's construction is consistent with the dictionary definition of an "electrical switch." (*See* D.I. 127, Ex. B-19)

Q. "means . . . for energizing said electromagnetic means"[26]

Plaintiff's Proposed Construction:
Function: "energizing said electromagnetic means"
Structure: "an electrical circuit including wires or other electrical connectors; or, an equivalent of the foregoing structure"

Volkswagen's Proposed Construction:
Function: "energizing said electromagnetic means"
Structure: "an electrical circuit including wires or other electrical connectors; or, an equivalent of the foregoing structure"

ZF Sachs's Proposed Construction:
Function: "energizing said electromagnetic means"
Structure: "an electrical circuit including wires or other electrical connectors; or, an equivalent of the foregoing structure"

Court's Construction:
Function: "energizing said electromagnetic means"
Structure: "an electrical circuit including wires or other electrical connectors; or, an equivalent of the foregoing structure"

The parties agree on the construction of this means-plus-function term. The Court will adopt the parties' agreed upon construction.

R. "said at least one opening"[27]

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[26]This term appears in claim 4 of the '354 patent.

[27]This disputed term appears in claim 8 of the '354 patent.

Plaintiff's Proposed Construction: "one or more of the openings"

Volkswagen's Proposed Construction: "all of said one or more openings"[28]

ZF Sachs's Proposed Construction: No construction necessary. Alternatively, if the Court decides to construe this term, it should be construed as "one or more openings."

Court's Construction: "all of said one or more openings"

The Court's construction is supported by the plain language of the claim. (*See* '354 patent col.6 ll.68- col.7 ll.1-11) As already noted, the plate mentioned in claim 8 can contain more than one opening. Here, the disputed language of claim 8 references the opening(s) of the plate previously mentioned in the claim by including the word "said." Thus, the plain language of claim 8 indicates that all of "said" openings will be sealed.

S. "mercury switch"[29]

Plaintiff's Proposed Construction: "device that detects acceleration by means of movement of a mass through a tube so as to alter the voltage and/or current of an electrical circuit, wherein the mass is mercury"

Volkswagen's Proposed Construction: No construction necessary. The Court should apply the ordinary meaning of this term – "an electrical switch in which mercury can engage two electrical contacts and thereby complete an electrical circuit."

ZF Sachs's Proposed Construction: "an electrical switch in which the on/off states of the switch are controlled by the movement of mercury relative to the contacts of the switch"

Court's Construction: "an electrical switch in which the on/off states of the switch are controlled by the movement of mercury relative to the contacts of the switch"

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[28]Volkswagen proposed this construction at the *Markman* hearing. (*See* Tr. at 113)

[29]This disputed term appears in claim 15 of the '354 patent.

The '354 patent explains that the mercury switch may consist of "two sets of contacts at opposite ends of the tube to be engaged by the mercury" or "two balls of mercury . . . adapted to engage the set of electrical contacts at the ends of the tube when the tube tilts in its direction." ('354 patent col.2 ll.36-46) Plaintiff's construction involving detection of acceleration is unsupported.

T. "prevent any flow of said fluid"[30]

Plaintiff's Proposed Construction: "eliminate flow of said fluid"

Volkswagen's Proposed Construction: "shut off any further flow of said hydraulic fluid"

ZF Sachs's Proposed Construction: "to stop flow of hydraulic fluid"

Court's Construction: "to stop flow of said hydraulic fluid"

The parties agree on the fundamental construction of this term – stopping the flow of hydraulic fluid – but merely use different words to express this. The Court will construe this term using the same language it used in its construction of the related term "prevent flow of said fluid."

U. "means for dampening the movement of the piston when the piston is compressed or extended"[31]

Plaintiff's Proposed Construction:
Function: "dampening the movement of the piston when the piston is compressed or extended"
Structure: "(1) a dampening unit comprising a series of springs and openings; or (2) a dampening unit comprising a series of plates having openings and pop-off valves; or (3) a dampening unit comprising a computer-operated motor acting on the piston to decelerate its bump-induced movement; or (4) a series of openings in

[30]This disputed term appears in claim 16 of the '354 patent.

[31]This disputed term appears in claim 1 of the '153 patent.

a plate, arranged in substantial circles around a central area of the plate; or (5) a mechanical spring affixed to the piston and the plate; and/or (6) equivalents of any of the foregoing"

Volkswagen's Proposed Construction:
Function: "dampening the movement of the piston when the piston is compressed or extended"
Structure: "(1) a dampening unit comprising a series of springs and openings; or (2) a dampening unit comprising a series of plates having openings and pop-off valves; or (3) a dampening unit comprising a computer-operated motor acting on the piston to decelerate its bump-induced movement; or (4) a series of openings in the plate, arranged in substantial circles around a central area of the plate; or (5) a mechanical spring affixed to the piston and the plate, or an equivalent of any of the foregoing structures (1) through (5)"

ZF Sachs's Proposed Construction:
Function: "dampening the movement of the piston when the piston is compressed or extended"
Structure: "a series of plates, valves, and springs disposed between the piston and the plate and affixed to the inner wall of the chamber; a series of plates having valved openings and openings provided with pop-off valves disposed between the piston and the plate and affixed to the inner wall of the chamber; a plate having a series of concentric openings and affixed to the inner wall of the chamber; a coil spring affixed at one end to the plate and at the other end to the piston; and a computer operated motor acting on the piston to decelerate its movement, and dampening means having one of these structures and equivalents thereof"

Court's Construction:
Function: "dampening the movement of the piston when the piston is compressed or extended"
Structure: "(1) a dampening unit comprising a series of springs and openings; or (2) a dampening unit comprising a series of plates having openings and pop-off valves; or (3) a dampening unit comprising a computer-operated motor acting on the piston to decelerate its bump-induced movement; or (4) a series of openings in a plate, arranged in substantial circles around a central area of the plate; or (5) a mechanical spring affixed to the piston and the plate; and/or (6) equivalents of any of the foregoing"

The parties agree on the function of this means-plus-function term. Additionally, although the parties use slightly different wording, the parties agree on the corresponding structures. The Court's construction is supported by the specification of the '153 patent, which

discloses the structures identified within the Court's construction. (*See* '153 patent col.7 ll.50 - col.8 ll.25; *id.* at col.9 ll.22-52; *see also id.*, Figs. 2A, 2B, 2C, 9A, 9B)

V. "being below"[32]

Plaintiff's Proposed Construction: "located near the bottom of"

Volkswagen's Proposed Construction: No construction necessary. Court should apply the ordinary meaning of this term – "being located beneath."

ZF Sachs's Proposed Construction: No construction necessary. However, if the Court elects to construe this claim element, it should be construed in accordance with its ordinary meaning, *i.e.*, "the plate and the opening therein are located below the inner tubular structure."

Court's Construction: "being located beneath"

The Court concludes that it must construe this term because the parties do not agree on its meaning and their dispute appears to be material. *See O2 Micro*, 521 F.3d at 1361. The Court's construction is supported by the plain language of the claim. (*See* '153 patent col.10 ll.43-62) By contrast, Plaintiff's construction improperly imports a limitation from Figure 2 into the claim. *See MBO Labs.*, 474 F.3d at 1333 ("[P]atent coverage in not necessarily limited to inventions that look like the ones in the figures. . . . To hold otherwise would be to import limitations onto the claim from the specification, which is fraught with 'danger.'").

IV. CONCLUSION

For the above reasons, the Court will construe the disputed claim terms within the patents-in-suit consistent with this Memorandum Opinion. An appropriate Order follows.

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[32]This disputed term appears in claim 3 of the '153 patent.

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

CLOUD FARM ASSOCIATES, L.P.,	:	
Plaintiff,	:	
v.	:	C.A. No. 10-502-LPS
VOLKSWAGEN GROUP OF AMERICA, INC., and ZF SACHS AG,	:	
Defendants.	:	

At Wilmington this 27th day of July, 2012, for the reasons set forth in the Memorandum Opinion issued this same date,

IT IS HEREBY ORDERED that the claim language of U.S. Patent Nos. 5,529,153 and 5,437,354, shall be construed as follows:

1. The term "partially filled with hydraulic fluid" is construed to mean "partially, but not completely filled with hydraulic fluid."
2. The term "a chamber having two portions partially filed with hydraulic fluid" is construed to mean "the chamber is divided into two portions, wherein the two portions taken together are partially but not completely filled with hydraulic fluid."
3. The terms "seal," "seals," and "sealing" are construed to mean "stopping the flow of hydraulic fluid."
4. The term "prevent flow of said fluid" is construed to mean "to stop flow of said hydraulic fluid."

5. The terms "preventing tilting of the frame or body of the vehicle" and "preventing tilting of the body of the vehicle are construed to mean "to stop the frame or body of the vehicle from tilting."

6. The term "prevent movement of the piston and further tilting of the body of the vehicle" is construed to mean "stop any further movement of the piston and any further tilting of the body of the vehicle."

7. The term "a plate within said chamber having a substantially central opening separating said fluid within the chamber into a lower portion and an upper portion" is construed to mean "a plate disposed in the chamber having a substantially central opening in the plate, the plate separates said fluid within the chamber into a lower portion and an upper portion."

8. The term "a plate within said chamber having at least one opening separating the fluid within the chamber into two portions" is construed to mean "a plate disposed in the chamber with at least one opening in the plate, through which fluid may pass from one portion of the chamber to the other."

9. The term "means within said chamber to separate said fluid within the chamber into two portions" is construed to mean having a function of "separating said fluid within said chamber into two portions" and having a structure of "a plate within said chamber, and equivalents thereof."

10. The term "sealing means" is construed to mean having the function of "sealing" and having the structure of "seal or shut-off valve and equivalents thereof."

11. The term "means for sensing the tilt" is construed to mean having the function of

"sensing tilting movement of the vehicle" and the structure of "a tube in the shape of a wide shallow U and mounted crosswise of the vehicle, with (1) two sets of electrical contacts at the opposite ends of the tube to be engaged by mercury, and (a) a pool of mercury within the tube, or (b) two balls of mercury, each within a glass envelope at each end of the U-shaped tube; or (2) two crimped portions to the left and right of the center of the tube which are each parts of two electrical circuits, and a ball bearing free to roll within the tube, which can complete the electrical circuit at one of the crimped portions, or an equivalent of any of the foregoing structures."

12. The term "means for moving the sealing means to seal" is construed to mean having the function of "moving the sealing means to seal" and structure of "a solenoid, a rod, and a spring; or an equivalent of the foregoing combination."

13. The term "electromagnetic means to move said sealing means to seal" is construed to mean having the function of "moving the sealing means to seal" and the structure of "a solenoid, a rod, and a spring; or an equivalent of the foregoing."

14. The term "electromagnetic means for operating said sealing means" is construed to mean having the function of "operating said sealing means" and the structure of "a solenoid, a rod, and a spring; or an equivalent of the foregoing."

15. The terms "predetermined tilt position of the body" and "set tilt position of the body" are construed to mean "the predetermined degree of tilt of the body of the vehicle at which the sensing means is activated."

16. The terms "electrical switch" and "means [including] an electrical switch" are construed to mean "A circuit element that has two states, on and off. When on, a switch allows electrical signals to pass unimpeded. When off, it does not allow electrical signals to pass."

17. The term "means . . . for energizing said electromagnetic means" is construed to mean "an electrical circuit including wires or other electrical connectors; or, an equivalent of the foregoing structure."

18. The term "said at least one opening" is construed to mean "all of said one or more openings."

19. The term "mercury switch" is construed to mean "an electrical switch in which the on/off states of the switch are controlled by the movement of mercury relative to the contacts of the switch."

20. The term "prevent any flow of said fluid" is construed to mean "to stop flow of said hydraulic fluid."

21. The term "means for dampening the movement of the piston when the piston is compressed or extended" is construed to mean having the function of "dampening the movement of the piston when the piston is compressed or extended" and the structure of "(1) a dampening unit comprising a series of springs and openings; or (2) a dampening unit comprising a series of plates having openings and pop-off valves; or (3) a dampening unit comprising a computer-operated motor acting on the piston to decelerate its bump-induced movement; or (4) a series of openings in a plate, arranged in substantial circles around a central area of the plate; or (5) a

mechanical spring affixed to the piston and the plate; and/or (6) equivalents of any of the foregoing."

22. The term "being below" is construed to mean "being located beneath."

UNITED STATES DISTRICT JUDGE