

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

AUTOMOTIVE TECHNOLOGIES
INTERNATIONAL,

Plaintiff,

Case No. 01-CV-71700-DT

v.

BMW OF NORTH AMERICA, INC., et al.,

Defendants.

**OPINION AND ORDER GRANTING DEFENDANTS' "MOTION FOR SUMMARY
JUDGMENT OF INVALIDITY OF THE '253 PATENT FOR FAILURE TO COMPLY
WITH THE WRITTEN DESCRIPTION REQUIREMENT," DENYING DEFENDANTS'
"MOTION FOR SUMMARY JUDGMENT OF THE INVALIDITY OF CLAIMS 1, 11, 20,
30, AND 39 OF THE '253 PATENT IN VIEW OF PRIOR ART," AND GRANTING
DEFENDANT DELPHI CORPORATION'S "MOTION FOR PARTIAL SUMMARY
JUDGMENT OF INVALIDITY . . . FOR LACK OF ENABLEMENT"**

This is a patent infringement case where Plaintiff has sued Defendants for infringement of United States Patent No. 5,231,253 ("the '253 patent") based on Defendants' manufacture and/or use of side impact sensors for detecting acceleration forces in automobile air bag safety devices or systems. The '253 patent is titled "Side Impact Sensors" and claims certain sensors designed to be used for side impact sensing and initiating a vehicle's occupant protection apparatus (e.g. air bags). The court entered a claim construction order regarding the '253 patent on March 31, 2004. This case is currently before the court on three dispositive motions challenging the validity the '253 patent.

First, on October 15, 2004 Defendants American Honda Motor Company, DaimlerChrysler Corporation, DaimlerChrysler Motors Corporation, Ford Motor

Company, Honda Motor Company Ltd., Hyundai Motor America, Hyundai Motor Company, Mazda Motor of America, Inc., Saab Cars USA, Inc., Siemens AG, Siemens Automotive Corporation, TK Electronics, Inc. Toyota Motor Sales USA, Inc., TRW Automotive US LLC, and Visteon filed a motion for summary judgment of invalidity of the '253 patent for failure to comply with the written description requirement in 35 U.S.C. § 112 ¶ 1. This motion was fully briefed and, on January 5, 2005, the court held a hearing on the motion.

Second, Defendants American Honda Motor Company, DaimlerChrysler Corporation, DaimlerChrysler Motors Corporation, Ford Motor Company, Honda Motor Company Ltd., Hyundai Motor America, Hyundai Motor Company, Mazda Motor of America, Inc., Saab Cars Sales USA, Inc., TRW, Inc., and Visteon Corporation filed a motion for summary judgment on October 15, 2004 challenging the validity of Claims 1, 11, 20, 30, and 39 of the '253 patent based on anticipation and obviousness under Sections 102 and 103 of the Patent Act. See 35 U.S.C. §§ 102, 103. Defendants filed an amended brief in support of their October 15, 2004 motion on October 25, 2004. Plaintiff filed a response on November 24, 2004 and the court received Defendants' reply brief on December 23, 2004. The court held a hearing on this motion January 12, 2005.

Third, on February 3, 2005, Defendant Delphi Corporation ("Delphi") filed its "Motion for Partial Summary Judgment of Invalidity of U.S. Patent No. 5,2341,253 for Lack of Enablement." Dephi moves for the court to find, as a matter of law, that the claims of the '253 patent that cover an electronic sensor are invalid for failure to fulfill

the enablement requirement of 35 U.S.C. § 112, ¶ 1. Delphi's motion also has been fully briefed and the court heard oral argument from the parties on April 27, 2005.

For the reasons explained below, the court will grant Defendants' motion for summary judgment of invalidity for failure to comply with the written description requirement, deny Defendants' motion for summary judgment of invalidity of certain claims in view of the prior art, and grant Delphi's motion for partial summary judgment of invalidity for lack of enablement.

I. STANDARD

Under Federal Rule of Civil Procedure 56, summary judgment is proper when there is no genuine issue as to any material fact and the moving party is entitled to judgment as a matter of law. Fed. R. Civ. P. 56(c). "Where the moving party has carried its burden of showing that the pleadings, depositions, answers to interrogatories, admissions and affidavits in the record construed favorably to the non-moving party, do not raise a genuine issue of material fact for trial, entry of summary judgment is appropriate." *Gutierrez v. Lynch*, 826 F.2d 1534, 1536 (6th Cir. 1987) (citing *Celotex Corp. v. Catrett*, 477 U.S. 317 (1986)); see also *All Dental Prodx, LLC v. Advantage Dental Prods. Inc.*, 309 F.3d 774, 778 (Fed. Cir. 2002).

Summary judgment is not appropriate when "the evidence presents a sufficient disagreement to require submission to a jury." *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 251-52 (1986); *Searfoss v. Pioneer Consol. Corp.*, 374 F.3d 1142, 1148 (Fed. Cir. 2004). The existence of some factual dispute, however, does not defeat a properly supported motion for summary judgment; the disputed factual issue must be material. See *Anderson*, 477 U.S. at 252 ("The judge's inquiry, therefore, unavoidably asks

whether reasonable jurors could find by a preponderance of the evidence that the plaintiff is entitled to a verdict—whether there is [evidence] upon which a jury can properly proceed to find a verdict for the party producing it, upon whom the *onus* of proof is imposed.”). A fact is “material” for purposes of summary judgment when proof of that fact would have the effect of establishing or refuting an essential element of the claim or a defense advanced by either party. *Kendall v. Hoover Co.*, 751 F.2d 171, 174 (6th Cir. 1984).

In considering a motion for summary judgment, the court must view the facts and draw all reasonable inferences from those facts in a manner most favorable to the nonmoving party. *Striker Corp. v. Davol Inc.*, 234 F.3d 1252, 1257 (Fed. Cir. 2000); *Wexler v. White’s Furniture, Inc.*, 317 F.3d 564, 570 (6th Cir. 2003) (citing *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 587 (1986)). The court is not to weigh the evidence to determine the truth of the matter, but must determine if there is a genuine issue for trial. *Sagan v. United States*, 342 F.3d 493, 497 (6th Cir. 2003). The burden falls on the moving party to conclusively show that no genuine issue of material fact exists and that he is entitled to judgment as a matter of law. *Wilkins v. Jakeway*, 183 F.3d 528, 532 (6th Cir. 1999); *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1569 (Fed. Cir. 1997).

II. DEFENDANTS’ WRITTEN DESCRIPTION REQUIREMENT MOTION

A. Background

In their motion based on an alleged failure to comply with the written description requirement, Defendants make essentially three arguments. First, Defendants argue that the claims of the ‘253 patent fail to satisfy the written description requirement

because the claim limitation reciting “means for mounting” at locations on “a side of the vehicle between the centers of the front and rear wheels” is nowhere described in the specification. (Defs.’ Mot. Br. at 1.) Second, Defendants argue that the asserted claims do not meet the written description requirement because they encompass a sensor that may be mounted at locations other than the side door of a vehicle, contrary to the “express and unequivocal requirement in the specification that ‘[a] crash sensor for sensing side impacts must be placed on the side door structure’ and that ‘[t]his location is essential’” (*Id.* at 2.) Third, Defendants argue that the May 1, 1992 amendment which added the claim limitations at issue “constitutes ‘new matter’ added to the claims during prosecution of the patent, lacking the required description in the specification.” (*Id.* at 1.)

On the other hand, Plaintiff argues that the claim language “between the centers of the front and rear wheels” is clearly illustrated in Figure 4 of the ‘253 patent specification and is fully described in the written text of the ‘253 patent specification. Plaintiff maintains that no new matter was added during prosecution and that the specification is not limited to a sensor mounted in a side door of a vehicle. It also argues that Defendants have failed to meet their burden to show that no reasonable jury could find the written description was satisfied, and that there is at least a triable issue of fact on invalidity.

The ‘253 patent describes “Side Impact Sensors” and the current dispute focuses on the location for mounting these sensors. The claim language at issue relates to each of the forty-five patent claims in the ‘253 patent with the exception of Claim 45. The language includes “a means for mounting” a sensor “onto at least one of a side door of

the vehicle and a side of the vehicle between the centers of the front and rear wheels, in such a position and direction as to sense an impact onto the side of said vehicle.” See, e.g., ‘253 Patent Claims 1, 15, and 29. In its order construing claims, the court ruled that these claims permit, but do not require, the sensors described to be mounted onto the side door of the vehicle. (03/31/04 Order at 28-30.)

The ‘253 patent is dated July 27, 1993 and resulted from the prosecution of several patent applications. Initially, Patent Application 314,603 (the “‘603 application”) was filed on February 23, 1989. Another patent application, No. 480,273 (the “‘273 application”), was filed on February 15, 1990. The ‘273 application is a continuation-in-part application¹ of the ‘603 application and includes the disclosures found in the ‘253 patent. The ‘253 patent eventually issued from U.S. Patent Application No. 896,496 (the “‘496 application”), which is a continuation of the ‘273 application. The parties agree that the ‘273 application and the ‘496 application have the same specification.

During prosecution of the ‘253 patent, the inventors sought an amendment on October 9, 1991. In the October 9, 1991 amendment, the patent applicants amended certain independent claims to “recite ‘means for mounting said sensor into the side door of a vehicle . . .” They also stated “it is the concept of placing an acceleration determining sensor in the vehicle door for which the applicants seek patent protection.” (Defs.’ Mot. Br., Ex. 2; see also Defs.’ *Markman* Br., Ex. 3 at 158.) In the October 9, 1991 amendment, the ‘253 Patent applicants went on to distinguish their use of

¹ A continuation-in-part (“CIP”) application “contains subject matter from a prior application and may also contain additional matter not disclosed in the prior application.” *Augustine Medical, Inc. v. Gaymar Indus.*, 181 F.3d 1291, 1302 (Fed. Cir. 1999). As such, “[d]ifferent claims of such an application may therefore receive different effective filing dates.” *Id.*

acceleration sensors to sense side collisions from prior art. They specifically distinguished their application from “references, such as Norton” that use acceleration sensors “located within the forward position of the vehicle to sense frontal impacts.” (See Defs.’ Mot. Br., Ex. 2 at 9; Defs.’ *Markman* Br., Ex. 3 at 159.)

The claim language currently at issue was added by amendment dated May 1, 1992. (See Defs.’ Mot. Br. Ex. 3.) Before this amendment, the claim language read “means for mounting said sensor onto the side door the vehicle in a position to sense an impact into the side of said vehicle.” (*Id.*) The claim language was amended to “means for mounting said housing onto at least one of a side door of the vehicle and a side of the vehicle between the centers of the front and rear wheels, in such a position and direction as to sense an impact into the side of said vehicle.” (Defs.’ Mot. Br. Ex. 3, May 1, 1992 Amendment at 2.) The May 1992 amendment remarks described the change in language as follows: “the sensor is mounted on the motor vehicle in such a way as to sense side impacts; that is, it is mounted either on a side door of the vehicle or on a ‘side of a vehicle between the centers of the front and rear wheels,’ (or in both places) and it is located and oriented in such a way as to sense an impact into the side of the vehicle. Claims 1, 16, and 31 formerly recited that the acceleration sensor was mounted in a ‘side door’ of a vehicle. Such mounting is preferable, although unnecessarily limiting since (for example) the sensor can be mounted within the pillar between the front and rear doors of a four-door vehicle” (*Id.*, May 1, 1992 Amendment at 7.) Prior to this May 1, 1992 amendment, the applicants sought approval for a device

that had a means for mounting onto a side door of a vehicle.² The '253 patent issued with the changes from the 1992 amendment incorporated into the claims.

B. The Written Description Requirement

The "written description" requirement is set forth in 35 U.S.C. § 112. It provides, in relevant part:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

35 U.S.C.A. § 112, ¶ 1.

This written description requirement helps to balance the competing interests at stake in the realm of patent law. As the Supreme Court has described,

The patent laws "promote the Progress of Science and useful Arts" by rewarding innovation with a temporary monopoly. U.S. Const., Art. I, § 8, cl. 8. The monopoly is a property right; and like any property right, its boundaries should be clear. This clarity is essential to promote progress, because it enables efficient investment in innovation. A patent holder should know what he owns, and the public should know what he does not. For this reason, the patent laws require inventors to describe their work in "full, clear, concise, and exact terms," 35 U.S.C. § 112, as part of the delicate balance the law attempts to maintain between inventors, who rely on the promise of the law to bring the invention forth, and the public, which should be encouraged to pursue innovations, creations, and new ideas beyond the inventor's exclusive rights. *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 150, 109 S.Ct. 971, 103 L.Ed.2d 118 (1989).

² Defendants claim that the Examiner, in an advisory action, refused to enter the proposed claim amendments because "[t]hey raise[d] new issues that would require further consideration and/or search," particularly "[n]ew issues including specific mounting locations of the switch or switches . . ." (Defs.' Ex. 4, May 19, 1992 Advisory Action.)

Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd., 535 U.S. 722, 730-731 (2002).

Whether the subject matter of a patent claim fails to meet the written description requirement of 35 U.S.C. § 112, ¶ 1, is a question of fact. *All Dental Prodx, LLC*, 309 F.3d at 778 (citing *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563 (Fed. Cir. 1991)); *Intirtool, Ltd. v. Texar Corp.*, 369 F.3d 1289, 1294 (Fed. Cir. 2004) (citing *Lampi Corp. v. Am. Power Prods.*, 228 F.3d 1365, 1378 (Fed. Cir. 2000)). “A party alleging that a patent is invalid for failure to comply with the written description requirement has the burden of establishing by clear and convincing evidence that the requirement was not met, in light of the presumption of validity.” *Intirtool*, 369 F.3d at 1294 (citing *Cordis Corp. v. Medtronic Ave., Inc.*, 339 F.3d 1352, 1364 (Fed. Cir. 2003)).³

The Federal Circuit Court of Appeals has described the court’s written description inquiry as follows:

The written description inquiry is a factual one and must be assessed on a case-by-case basis. *See Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1561, 19 USPQ2d 1111, 1116 (Fed. Cir. 1991) (quoting *In re Smith*, 59 C.C.P.A. 1025, 458 F.2d 1389, 1395, 173 USPQ 679, 683 (CCPA 1972) (“Precisely how close the original description must come to comply with the description requirement of § 112 must be determined on a case-by-case basis.”)). In order to satisfy the written description requirement, the disclosure as originally filed does not have to provide in hanc verba support for the claimed subject matter at issue. *See Fujikawa v. Wattanasin*, 93 F.3d 1559, 1570, 39 USPQ2d 1895, 1904 (Fed. Cir. 1996). Nonetheless, the disclosure must convey with reasonable clarity to those skilled in the art that the inventor was in possession of the invention, *Vas-Cath Inc.*, 935 F.2d at 1563-64, 19 USPQ2d at 1116-17, although we have also clarified that the possession test alone is not always sufficient to meet the written description requirement, *Enzo Biochem, Inc. v. Gen-*

³ A patent enjoys a presumption of validity which can be overcome only by presentation of clear and convincing evidence. 35 U.S.C. § 282; *United States Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1563 (Fed. Cir. 1997).

Probe Inc., 285 F.3d 1013, 1020-21 (Fed. Cir. 2002). As such, "the written description requirement is satisfied by the patentee's disclosure of 'such descriptive means as words, structures, figures, diagrams, formulas, etc., that fully set forth the claimed invention.'" *Enzo Biochem*, 285 F.3d at 1021 (quoting *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (Fed. Cir. 1997)). Put another way, one skilled in the art, reading the original disclosure, must reasonably discern the limitation at issue in the claims. *Waldemar Link, GmbH & Co. v. Osteonics Corp.*, 32 F.3d 556, 558, 31 USPQ2d 1855, 1857 (Fed. Cir. 1994).

Crown Operations Intern., Ltd. v. Solutia Inc., 289 F.3d 1367, 1376 (Fed Cir. 2002).

The Federal Circuit has also noted that "[i]t is a truism that a claim need not be limited to a preferred embodiment. However, in a given case, the scope of the right to exclude may be limited by a narrow disclosure." *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473, 1479 (Fed. Cir. 1998); see also *Regents of the Univ. of Cal. v. Eli Lilly & Co.*, 119 F.3d 1559, 1568 (Fed. Cir. 1997) (noting that case law does "not compel the conclusion that a description of a species always constitutes a description of a genus of which it is part"). To satisfy the written description requirement, the patent specification "must clearly allow a person of ordinary skill in the art to recognize that [the inventor] invented what is claimed." *Gentry Gallery Inc.*, 134 F.3d at 1479 (quoting *In re Gosteli*, 872 F.2d 1008, 1012 (Fed. Cir. 1989)).

C. The '253 Patent Specification & The Written Description Requirement

Defendants maintain that the claims of the '253 patent are invalid, as a matter of law, for reciting claim limitations for mounting the sensors described "between the centers of the front and rear wheels" without support in the specification. (Defs.' Mot. Br. at 8.) According to Defendants, the specification does not contain any description of what is meant by "between the centers of the front and rear wheels" or any description

that sensors could be mounted (or how to mount them) at a range of locations “between the centers of the front and rear wheels.” (*Id.*)

In addition, Defendants rely on the unambiguous text set forth at column four, lines 8-13 of the ‘253 patent specification where it states: “A crash sensor for sensing side impacts must be placed on the side door structure to be effective. This location is essential since it is sensing the velocity change of the portion of the vehicle which will eventually strike the occupant and therefore serves as a good predictor of V-cr.” (‘253 patent, col. 4, lines 8-13; Defs.’ Mot. Br., Ex. 6.) Defendants argue that the specification states unequivocally, and without qualification, that a sensor must be placed in the side door structure. They further contend that, because the claims of the ‘253 as construed by the court permit, *but do not require*, mounting at least an independent functional sensor on the side door structure, the claims exceed the applicants’ described invention and are invalid under the written description requirement. In short, Defendants argue that because the Plaintiff obtained a broad claim construction permitting an independent sensor to be mounted at a location other than on the side door structure, the patent claims fail to meet the written description requirement.

Conversely, Plaintiff deflects attention from the unambiguous statement in the specification relating to the essential location of a sensor in a side door structure. It argues that the claim language “between the centers of the front and rear wheels” is clearly disclosed and illustrated in Figure 4 of the ‘253 patent and is fully described in the written text. (Pl.’s Resp. at 4.) In particular, Figure 4 of the ‘253 patent shows multiple preferred places for mounting the single sensor and housing claimed in the

invention. Figure 4 identifies places other than the side door or side door structure. The text also provides, “Fig. 4 shows a side view of a vehicle illustrating the preferred mounting locations of side impact sensors.” (‘253 patent, col. 5, lines 49-50.)

Plaintiff also cites column 8, lines 16-21 of the patent specification, providing that: “[t]he thin pancake shape of the sensor of this invention lends itself to be easily mounted in the preferred locations for sensing side impacts. These locations include in the center of the side door 32, plus in front of the A-pillar 31 and just behind the B pillar 33 as shown in Fig. 4.” (*Id.* at co. 8, lines 16-21.) Plaintiff argues that Figure 4 and the text referring to Figure 4 would permit a reasonable jury to conclude that the disclosure clearly allows a person of ordinary skill in the art to recognize that the inventors invented what is claimed, a sensor capable of being mounted onto a side of the vehicle “between the centers of the front and rear wheels.” (See Dix 11/11/04 Decl. at ¶¶ 3-9; Pl.’s Resp. Ex. A.)

The failure to specifically mention a claim limitation that later appears in the claim language will not be fatal under the written description requirement “when one skilled in the art would recognize upon reading the specification that the new language reflects what the specification shows has been invented.” *All Dental Prodx*, 309 F.3d at 779. In addition, one of ordinary skill may consider “words, structures, figures, diagrams, formulas, etc.” set forth in a specification. *Crown Operations*, 289 F.3d at 1376. Under the appropriate circumstances, “drawings alone may provide a ‘written description’ of an invention as required by § 112.” *Vas-Cath Inc.*, 935 F.2d at 1565. Conversely, “in a given case, the scope of the right to exclude may be limited by a narrow disclosure.” *Gentry Gallery Inc.*, 134 F.3d at 1479.

The Federal Circuit's decision in *Gentry Gallery* is persuasive in the current context. *Gentry Gallery* involved a patent directed to a unit of a sectional sofa in which two independent recliners face the same direction. *Gentry Gallery, Inc.*, 134 F.3d at 1474. The patent specification described placing "a console" between the two recliners which faced in the same direction. *Id.* at 1475. The specification also stated that the console "accommodates the controls for both reclining seats." *Id.* The *Gentry* court specifically noted that several claims in the patent were "directed to a sectional sofa in which the control means are specifically located on the console." *Id.*

The defendant moved for summary judgment, arguing, *inter alia*, that the patent's disclosure did not support claims where the location of the recliner controls were placed in positions other than on the console. *Id.* at 1479. The district court denied the defendant's motion for summary judgment of invalidity, and, after a bench trial, held that the patent was not invalid, finding that "the claims in which the location of the controls is not limited to the console [were] not invalid under 35 U.S.C. § 112, ¶ 1." *Id.* at 1476.

The parties filed cross appeals on various rulings and the Federal Circuit reversed the district court, agreeing that the patent's disclosure did not support claims that permitted the recliner controls to be located in positions other than on the console. *Id.* at 1479. In finding that the district court's findings were clearly erroneous, the *Gentry* court explained:

In this case, the original disclosure clearly identifies the console as the only possible location for the controls. It provides for only the most minor variation in the location of the controls, noting that the control "may be mounted on top or side surfaces of the console rather than on the front wall . . . without departing from this invention." '244 patent, col. 2, line 68 to col. 3, line 3. No similar variation beyond the console is even suggested. Additionally, the only discernible purpose for the console is to house the controls. As the disclosure states, identifying the only purpose

relevant to the console, "[a]nother object of the present invention is to provide . . . a console positioned between [the reclining seats] that accommodates the controls for both of the reclining seats." *Id.* at col. 1, ll. 33-37. Thus, locating the controls anywhere but on the console is outside the stated purpose of the invention. Moreover, consistent with this disclosure, Sproule's broadest original claim was directed to a sofa comprising, *inter alia*, "control means located upon the center console to enable each of the pair of reclining seats to move separately between the reclined and upright positions." Finally, although not dispositive, because one can add claims to a pending application directed to adequately described subject matter, Sproule admitted at trial that he did not consider placing the controls outside the console until he became aware that some of Gentry's competitors were so locating the recliner controls. Accordingly, when viewed in its entirety, the disclosure is limited to sofas in which the recliner control is located on the console.

Id. at 1479.

The *Gentry Gallery* court also explained that the inventor "considered the location of the recliner controls on the console to be an essential element of his invention." *Id.* at 1480. While recognizing that "a claim may be broader than the specific embodiment disclosed in the specification," and that "an applicant is entitled to claims as broad as the prior art and his disclosure will allow," the *Gentry Gallery* court found that "one skilled in the art would clearly understand that it was not only important, *but essential*, to [the] invention, for the controls to on the console." *Id.* (emphasis added).

Similarly, in this case, there is no genuine issue of material fact because one skilled in the art would clearly understand the unambiguous statement in the '253 specification to require a side impact sensor to be placed on the side door structure of a vehicle. Like the disclosure in the patent considered by the *Gentry Gallery* court, the '253 specification makes mounting onto a side door structure an essential part of the claimed invention by expressly teaching that "[a] crash sensor for sensing side impacts *must be placed on the side door structure to be effective*. This location *is essential*

since it is sensing the velocity change of the portion of the vehicle which will eventually strike the occupant and therefore serves as a good predictor of V-cr.” (‘253 patent, col. 4, lines 8-13 (emphasis added).)

Plaintiff relies on Figure 4, the text of the specification referring to Figure 4, and Dr. Rollin Dix’s declaration as evidence supporting the existence of a triable issue of fact. The identification in Figure 4 of the specification of locations for mounting sensors in locations other than on the side door structure, however, does not carry the day. Figure 4 must be read in conjunction with the written text of the specification, where it describes Figure 4 to include three sensors wired in parallel. (‘253 patent, col. 8, lines 16-26.) It says nothing of a single independent sensor being mounted outside of the side door structure. (*Id.*) This portion of the specification is therefore entirely consistent with the inventor’s unambiguous statement that mounting onto the side door structure is essential for a side impact crash sensor to be effective. The plain meaning of the specification’s text provides clear and convincing evidence that the claimed invention must have a sensor mounted onto a vehicle’s side door structure.

Dr. Dix’s declaration is also insufficient to create a triable issue of fact. Dix states that, in his opinion, one having ordinary skill in the art would understand from the patent specification that a single sensor could be mounted anywhere onto a side of the vehicle “between the centers and front and rear wheels.” (Dix. Decl. at ¶¶ 5-7.) Dix relies on column 8, lines 16-26, and Figure 4 to opine that one skilled in the art would understand that the sensors shown in Figure 4 are wired in parallel and any one of the three sensors would provide protection. (*Id.* at 8.) He specifically states that “[t]he side door location is not essential.” (*Id.*) Conspicuously absent, however, from Dix’s declaration

is any explanation for how one having ordinary skill in the art would conclude that the side door location is not essential in light of the express statement in the specification stating: “A crash sensor for sensing side impacts must be placed on the side door structure to be effective. This location *is essential*” (‘253 patent, col. 4, lines 8-10 (emphasis added).)

The ‘253 specification does not provide a written description supporting the claims construed to permit mounting of a side impact sensor at various locations between the centers and of the front and rear wheels without having at least one sensor mounted onto a side door structure. The specification teaches that at least one sensor must be mounted in the side door structure of a vehicle as an essential location for an effective sensor. As such, the court will grant Defendants’ motion for summary judgment of invalidity for failure to comply with the written description requirement.

II. DEFENDANTS’ ANTICIPATION AND OBVIOUSNESS INVALIDITY MOTION

In their second motion, Defendants argue that claims 1, 11, 20, 30, and 39 of the ‘253 patent are invalid because: (1) these claims lack novelty and are anticipated by prior art; and (2) the differences between the invention’s claims and the prior art “are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art.” 35 U.S.C. § 103(a).

A. Anticipation Under 35 U.S.C. § 102(b)

By statute, a patented invention must be “new.” This requirement is tested in accordance with 35 U.S.C. § 102(a).

A person shall be entitled to a patent unless—

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent

35 U.S.C.A. § 102(a).

A patent enjoys a presumption of validity pursuant to 35 U.S.C. § 282.

“Consequently, ‘a moving party seeking to invalidate a patent at summary judgment must submit such clear and convincing evidence of invalidity so that no reasonable jury could find otherwise.’” *Chrimar Sys., Inc. v. Cisco Sys., Inc.*, 318 F. Supp. 2d 476, 491 (quoting *Eli Lilly & Co. v. Barr Labs.*, 251 F.3d 955, 962 (Fed. Cir. 2001)); see also *Beckson Marine, Inc. v. NFM, Inc.*, 292 F.3d 718, 725 (Fed. Cir. 2002) (A party seeking to establish particular claims as invalid must overcome the presumption of validity in 35 U.S.C. § 282 by clear and convincing evidence).

“[A]nticipation is a question of fact, [that] may be decided on summary judgment if the record reveals no genuine dispute of material fact.” *Telemac Cellular Corp. v. Topp Telecom, Inc.*, 247 F.3d 1316, 1327 (Fed. Cir. 2001) (citing *General Elec. Co. v. Nintendo Co., Ltd.*, 179 F.3d 1350, 1353 (Fed. Cir. 1999)); *Brown v. 3M*, 265 F.3d 1349, 1351 (Fed. Cir. 2001) (“Anticipation under 35 U.S.C. § 102 means lack of novelty, and is a question of fact.”).

To anticipate, every limitation of the claimed invention must be found in a single prior art reference. *Telemac Cellular Corp.*, 247 F.3d at 1327 (“A prior art reference must disclose every limitation of the claimed invention, either explicitly or inherently, to anticipate.”); *Beckson Marine, Inc.*, 292 F.3d at 725; *Brown*, 265 F.3d at 1351. Although all claim elements must be present in a single prior art reference, they may be found expressly or inherently. *Telemac Cellular Corp.*, 247 F.3d at 1327-28; *Advanced*

Display Sys. v. Kent State Univ., 212 F.3d 1272, 1282 (Fed. Cir. 2000) (“invalidity by anticipation requires that the four corners of a single, prior art document describe every element of the claimed invention, either expressly or inherently, such that a person of ordinary skill in the art could practice the invention without undue experimentation”).

Each prior art reference “must be ‘considered together with the knowledge of one of ordinary skill in the pertinent art.’” *In re Paulsen*, 30 F.3d 1475, 1479 (Fed. Cir. 1994) (citation omitted). “As [the Federal Circuit] has stated, ‘the dispositive question regarding anticipation [i]s whether one skilled in the art would reasonably understand or infer from the [prior art’s reference’s] teaching that every claim element was disclosed in that single reference.’” *Dayco Prods., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1368-69 (Fed. Cir. 2003) (quoting *In re Baxter Travenol Labs.*, 952 F.2d 388, 390 (Fed. Cir. 1991)). “A patent is invalid for anticipation when the same device or method, having all of the elements contained in the claim limitations, is described in a single prior art reference.” *Crown Operations Int’l, Ltd. v. Solutia Inc.*, 289 F.3d 1367, 1375 (Fed. Cir. 2002).⁴

Whether a claim element or limitation is inherent in a prior art reference is also a question of fact. *Telemac Cellular Corp.*, 247 F.3d at 1328. To be inherently disclosed, the missing claim limitation or characteristic “must be necessarily present [in the prior art reference such that] a person of ordinary skill in the art would recognize its presence.” *Crown Operations Int’l, Ltd.*, 289 F.3d at 1377; see also *MEHL/Biophile Int’l*

⁴ “Typically testimony concerning anticipation must be testimony from one skilled in the art and must identify each claim element, and explain in detail how each claim element is disclosed in the prior art reference.” *Schumer v. Lab. Computer Sys., Inc.*, 308 F.3d 1304, 1315 (Fed. Cir. 2002).

Corp. v. Milgraum, 192 F.3d 1362, 1365 (Fed. Cir. 1999) (prior art must *necessarily function* in accordance with or include the claimed limitations). As the Federal Circuit has explained,

Under the doctrine of inherency, if an element is not expressly disclosed in a prior art reference, the reference will still be deemed to anticipate a subsequent claim if the missing element "*is necessarily present in the thing described in the reference*, and that it would be so recognized by persons of ordinary skill." *Cont'l Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991). "Inherent anticipation requires that the missing descriptive material is '*necessarily present*,' not merely probably or possibly present, in the prior art." *Trintec Indus., Inc. v. Top-U.S.A. Corp.*, 295 F.3d 1292, 1295, 63 USPQ2d 1597, 1599 (Fed. Cir. 2002) (quoting *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999)).

Rosco, Inc. v. Mirror Lite Co., 304 F.3d 1373, 1380 (Fed. Cir. 2002) (emphasis added). Inherence "may not be established by probabilities or possibilities." *MEHL/Biophile Int'l Corp.*, 192 F.3d at 1365. "The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *Crown Operations, Ltd.*, 289 F.3d at 1377.

B. Whether Claims 1, 11, 20, 30 and 39 are Anticipated by the Prior Art

In their motion, Defendants identify the 1927 *Marsh* patent (Defs.' Mot. Br. at Ex. 9), the 1973 *Schmidt* patent (*Id.* at Ex. 10), the 1972 *Kendall* patent (*Id.* at Ex. 11), the 1972 *Jones* patent (*Id.* at Ex. 14), and the 1981 *Breed* patent (*Id.* at Ex. 13) as prior art references that allegedly anticipate the '253 patent. Although Defendants identify these five patents, their argument principally relies on the *Marsh* and *Schmidt* patents.

Defendants argue that the *Marsh* and *Schmidt* patents anticipate because no reasonable jury could conclude that these prior art references do not disclose every limitation found in claims 1, 11, 20, 30 and 39 of the '253 patent. Of these five claims, three claims are independent (claims 1, 20, and 30). Two are dependent (claims 11

and 30). Claim 11 depends on claim 1 and claim 39 depends on claim 30. (See '253 patent.) Because a dependent claim will not be anticipated if the claim upon which it depends does not anticipate, see *Hartness Int'l v. Simplimatic Eng'g Co.*, 819 F.2d 1100, 1107-08 (Fed. Cir. 1987), the court's analysis focuses on the independent claims.

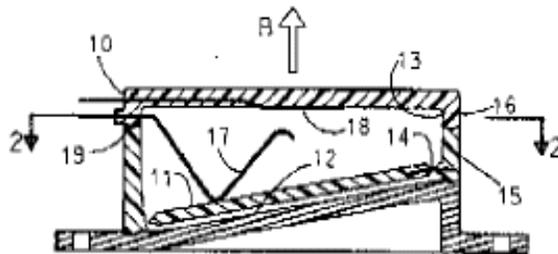
Claim 1 provides:

A side impact crash sensor for a vehicle having front and rear wheels, said sensor comprising:

- (a) a housing;
- (b) a mass within said housing movable relative to said housing in response to accelerations of said housing;
- (c) means responsive to the motion of said mass upon acceleration of said housing in excess of a predetermined threshold value, for initiating an occupant protection apparatus; and
- (d) means for mounting said housing onto at least one of a side door of the vehicle and a side of the vehicle between the centers of the front and rear wheels, in such a position and a direction as to sense an impact into the side of said vehicle

('253 patent Claim 1.)

Figure 1 of the '253 patent, shown below, is representative of Claim 1.



The housing 13 contains a hinged flapper 11 and two contacts 17 and 18. Contact 17 is bent so that it may serve as a spring biasing the flapper in its initial position. When the sensor housing

undergoes an acceleration of significant magnitude, the inertia of the flapper is forced upward relative to the housing and overcomes the bias force causing the contacts 17 and 19 to touch completing an electrical circuit and initiating the safety device. (‘253 patent col. 6, lines 4-32.)

Defendants first correctly note that “[i]t is undisputed that devices for sensing side impact crashes used in vehicles having front and rear wheels were known in the art.” (See, e.g., Marsh patent, Figs. 1 & 2 and p. 2, 35-45; Schmidt patent, col. 2, lines 6-10.) The Schmidt patent specifically discloses the use of lateral impact sensors. The Schmidt specification describes an embodiment of the invention as follows:

FIG. 3 shows a further embodiment, wherein there is a first crash impact current generator 32 disposed to be activated by a head-on collision, as indicated above. In addition, there is right-hand crash impact current generator 32a disposed to be activated by a lateral crash impact from the right. There is a third current generator 32b at the left-hand side of the automobile 12, to similarly [be] activated by a crash impact from the left-hand side of the car.

(Schmidt patent, col. 3, lines 32-40.) Figure 3 of the Schmidt patent is shown below.

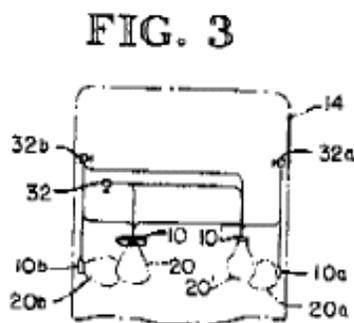


Figure 3 presents a bird's eye view of a vehicle with a crash restraint device comprising an inflatable bag mounted forward of the vehicle's passenger seat, a gas source to supply inflating gas, an electrically actuated initiating device for the gas

source, and means to generate an electric current to activate the gas source. (*Schmidt* patent Claim 1, col. 3 & 4.) The air bag # 20 is shown coming from the steering wheel # 10. The right-hand and left-hand crash impact current generators described above are shown at # 32b and # 32a.

Defendants argue that each of the elements of Claim 1 are taught by the *Marsh* and *Schmidt* references.

Claim 1(a) “a housing”

With regard to element (a) of claim 1, “a housing,” Defendants argue that this feature is inherently disclosed in the *Marsh* and *Schmidt* patents “because including a housing to mount and protect the sensor would be assumed by person of ordinary skill in the art, necessarily flowing from the teachings of these references and such a person’s inherent knowledge of the art.” (Defs.’ Mot. Br. at 10.) Defendants cite the ‘253 inventor’s (David S. Breed’s) own prior art crash sensor to support this argument. The *Breed* patent (U.S. Patent No. 4,284,863) discloses a sensor “adapted to be enclosed within a sturdy casing or housing.” (*Breed* patent, col. 3, lines 22-23.) Defendants also cite the *Jones* patent for the proposition that “providing housings [for sensors] [was] known in the art and, at a bare minimum, [merely reflected] an obvious design choice.” (Defs.’ Mot. Br. at 11 (citing *Jones* patent, col. 10, lines 7-9).) The *Jones* patent describes components of a “complete unidirectional impact sensor switch” with “[a] water resistant and dust proof cover . . . coaxially disposed around the active components of the impact sensor.” (*Id.*)

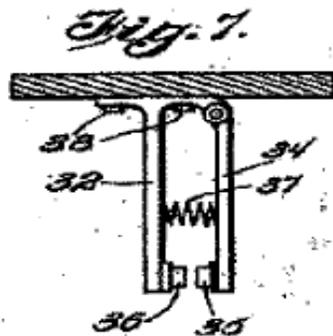
Claim 1(b) “mass . . . movable relative to said housing . . .”

Next, Defendants argue that the *Marsh* and *Schmidt* references disclose element

(b) of Claim 1, “a mass within said housing movable relative to said housing in response to accelerations of said housing.”

Marsh describes a sensor comprised of “inertia operating switching elements.” It states, “in [the] event of [a] collision . . . the inertia of the pivoted arm 34 [the asserted equivalent to the movable mass in the ‘253 patent] will cause this arm to overcome the action of the light spring 37 and bring the contacts 35 and 36 into engagement.” (*Marsh* patent, p. 2, lines 56-61 & Fig. 7 (Defs.’ Ex. 9).) The movable mass is the pivoted arm 34 which moves in response to accelerations of side impacts, i.e. based on its inertia experienced during a collision. (*See id.*)

Figure 7 shows a *Marsh* sensor mounted on the exterior of a vehicle as depicted below.



Similarly, the *Schmidt* patent discloses a movable mass to sense a head-on impact and lateral crash impacts.

The crash responsive current generating device of the present invention is generally designed 32 and comprises an inertial slug or mass 34 which is magnetized in a manner that its opposite poles are located at its front and rear end. This inertial mass 34 is connected by a breakable connection 36 to the automobile frame 38.

...

In circumstances of ordinary acceleration and deceleration of the

automobile 14, the accelerating forces on the mass 34 will not be sufficient to break the connection 36. However, in a crash impact situation which generates a decelerating force of a predetermined value, the connection 36 will break to permit the inertial force on the mass 34 to cause it to pass through the inductance coil 40.

(*Schmidt* patent, col. 2, lines 53-67 & col. 3, lines 1-4; see also *Schmidt* patent, col. 3, lines 33-40 & Figs. 2 and 3.) Figure 2 is depicted below.

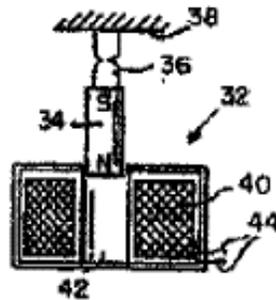


FIG. 2

Claim 1(c) “means responsive to the motion of said mass . . . for initiating an occupant protection apparatus”

Element (c) of Claim 1 requires a “means responsive to the motion of said mass upon acceleration of said housing in excess of a predetermined threshold value, for initiating an occupant protection apparatus.” This means-plus-function limitation has the function of “initiating an occupant protection apparatus,” and the court identified the corresponding structure as follows:

Corresponding structure includes mechanical switches with two contacts that engage in response to a force of sufficient magnitude and duration, and their equivalents. The specification identifies such mechanical switches in Figures 1 and 2 at column 6, lines 7-32; Figure 5 at column 8, lines 53-60; Figure 6 at column 8, lines 61-66; and Figures 8 and 9, lines 30-60.

Corresponding structure also includes an electronic switch or assembly as described in Figure 11 at column 10, lines 3-14 of the patent specification and its equivalents. The electronic switch or assembly contains a sensing

mass that moves relative to the housing in response to the acceleration of the housing caused by a side impact crash.

(03/31/04 *Markman* Order at 6.)

Marsh teaches this recited means for initiating by expressly disclosing “switches . . . consist[ing] of contact elements” which are “brought into engagement by impact transversely of the vehicle.” (*Marsh* patent, Fig. 7, p. 1, lines 63-67 and p. 2, lines 10-12, 46-65, 54, 83-94, and 103-08.) Similar to the ‘253 patent, *Marsh* teaches that in the event of a collision, the force generated brings a pair of contacts together, causing a circuit to initiate the protection device. (*Id.*)

Schmidt describes this claim limitation by disclosing an electronic switch having a mass that moves in response to an acceleration of a predetermined value to close a circuit, thereby initiating an air bag. (See *Schmidt* patent, col. 2 line 65 - col.3, line 13 (portions cited above).)

Claim 1(d) “means for mounting . . .”

Lastly, with regard to Claim 1, Defendants assert that element (d), “means for mounting said housing onto at least one of a side door of the vehicle and a side of the vehicle . . . in such a position and a direction as to sense an impact into the side of said vehicle,” is taught by *Marsh* and *Schmidt*. In *Marsh*, the specification states: “I preferably provide the sides of the vehicle with inertia operating switching elements . . . [which] include a contact support 32 having means, as at 33, whereby they may be rigidly secured to the running board or other portion of the vehicle.” (*Marsh* patent, p. 2, lines 42-50 (emphasis added).) *Schmidt* teaches this means for mounting limitation by

disclosing a side impact sensor 32a mounted on the right side of the car to sense an impact to the right side. (See *Schmidt*, col. 3, lines 32-44.)⁵

Conversely, Plaintiff argues that *Marsh* and *Schmidt* each fail to disclose, teach, or even suggest a “housing” as required by all of the claims at issue. Plaintiff relies on proposed expert testimony to support its contention. (Dix Decl. at ¶¶ 6-10.) According to Dr. Dix, Plaintiff’s proposed expert,

Neither [the *Marsh* nor the *Schmidt*] patents anticipate[] the Claims because they each are missing several limitations of the Claims. For example, the *Marsh* and *Schmidt* patents each fail to disclose, teach, or even suggest a ‘housing’ as required by the Claims. I note that the housing feature is an important element of the Claims because most, if not all, of the other limitations of the Claims are specifically interrelated to and require the claims housing feature. For example, Claim 1 requires

- (a) a **“housing”**
- (b) a **“mass within said housing”** where the mass is **“movable relative to the housing”**
- (c) means responsive to the motion of the mass **“upon acceleration of said housing”** in excess of a predetermined threshold value, for initiating an occupant protection apparatus; and

⁵ Defendants also explain that independent Claims 20 and 30 of the ‘253 patent recite limitations that “are identical in all material respects to the limitations of claim 1,” but argue any additional limitations are also disclosed in the prior art.

Claim 20 additionally recites a “means for biasing said sensing mass within said housing toward a first position.” *Marsh* and *Schmidt* each teach this feature of Claim 20. *Marsh* discloses a spring to bias the movable sensing mass of a mechanical switch toward the open (first) position, stating that “contact 35 [is] normally held in spaced relation to the contact 36 of the arm 32 by a light spring 37 or the like.” (*Marsh* patent, p.2, lines 51-53 and Fig. 7.) In *Schmidt*, the means for biasing is disclosed in a breakable connection that restrains the mass in a first position unless the sensor is affected by sufficient acceleration. (See *Schmidt* patent, col. 2 line 65- col. 3 line 4.)

Finally, with regard to Claim 30, Defendants state that it is identical to Claim 1 except that it recites “a housing having a total thickness in the sensing direction less than both its height and widths, said housing having a cavity within.” Defendants argue that this is merely a matter of design choice that is well within the knowledge of one having ordinary skill in the art.

(d) “**means for mounting said housing**” onto at least one of a side door of the vehicle and a side . . .

(*Id.* at ¶ 7 (emphasis in original) (footnotes omitted).) Dix also opines that Claims 20 and 30 are not anticipated because the prior art references do not contain all of their claim limitations. (See *id.* at ¶¶ 8, 9.)

It is undisputed that neither *Marsh* nor *Schmidt* expressly disclose or require a housing for the sensors claimed in those patents. Rather, the parties’ dispute regarding anticipation turns on whether the “housing” limitation and those limitations reciting functions in relation to such housing of the ‘253 claims are inherently disclosed (along with all other claim elements) in at least one of the single prior art references identified.

As explained above, whether a single prior art reference inherently discloses a claim element is an issue of fact. The party asserting invalidity based on anticipation must present clear and convincing evidence that the missing element is *necessarily present* in the reference and that it would be recognized as such by one having ordinary skill in the art. See *Telemac Cellular Corp.*, 247 F.3d at 1328; *Crown Operations Int’l, Inc.*, 289 F.3d at 1375; *Rosco*, 304 F.3d at 1380. It is not enough that the limitation is possible or probable based on the prior art reference. See *MEHL/Biophile Int’l Corp.*, 192 F.3d at 1365.

Although one having ordinary skill in the art would almost certainly practice the invention in *Marsh* with a protective housing to avoid corrosion of and to provide protection for the contact elements, Defendants have not carried their burden to establish, by clear and convincing evidence, that the housing limitation present in the ‘253 claims is necessarily present in *Marsh* or any other single prior art reference considered in isolation. Defendants cite the *Breed* patent at column 3, lines 7-9, 21-23,

and 29-30 as well as the *Jones* patent, column 10, lines 7-9 as evidence that the housing limitation is inherently disclosed and that the claimed housing would be “assumed” by one having ordinary skill in the art.

This evidence, however, fails to explain how the missing “housing” limitation is “necessarily present” and not “merely probably or possibly present” in the prior art references cited. See *Rosco, Inc.*, 304 F.3d at 1380. Defendants present a strong case that the sensors in *Marsh* and *Schmidt* would most likely, if not always, be practiced with a protective housing. The focus of the court’s anticipation analysis, however, centers on each single reference of prior art and whether the prior art necessarily functions with the inherent element. A general assumption that would probably be made by one having ordinary skill in the art is not sufficient to find that the prior art necessarily includes a housing. The issue is whether one skilled in the art would read the *Marsh* or *Schmidt* patents as inherently showing or requiring a housing for the sensor described therein to function. See *id.*

Defendants’ evidence includes the use of a housing in the *Breed* patent for velocity change sensors and the use of a “water resistant and dust proof cover” in the *Jones* patent for a personal restraint system for vehicle occupants. (See Defs.’ Mot. Br., Exs. 13 & 14.) Citing the use of a protective sensor housings in patents other than *Marsh* and *Schmidt* (the prior art references alleged to anticipate) does not explain how a person with ordinary skill in the art would necessarily find a housing disclosed by the *Marsh* or *Schmidt* patents. This evidence of wide-spread use of housings for crash impact sensors is more relevant to whether there was a motivation to combine the prior art in such a manner that rendered the use of a sensor housing obvious at the time of

the '253 patent. See *Continental Can Co. USA v. Monsanto Co.*, 948 F.2d 1264, 1267 (Fed. Cir. 1991) (“When more than one reference is required to establish unpatentability of the claimed invention anticipation under § 102 can[not] be found, and validity is determined in terms of § 103.”).

Defendants’ citation to other patents using a protective housing establishes only the strong probability or possibility that a protective sensor housing would be used for sensors in practicing the *Marsh* or *Schmidt* patents. For instance, the *Jones* prior art reference describes a water resistant and dust proof cover. (Defs.’ Mot. Br. Ex. 14, *Jones* Patent at col. 10 lines 8-10.)

This evidence must be examined along with Dix’s sworn declaration explaining the importance of the housing limitation and his opinion that “[o]ne of ordinary skill in the art would not recognize that a housing is necessarily present in the sensors shown and described [in the prior art references].” (Dix. Decl. at ¶¶ 6-14.) When taking all of the evidence in a light most favorable to Plaintiff, Defendants’ evidence is not sufficient to establish, as a matter of law, that the “housing” limitation is inherently disclosed in the *Marsh* or the *Schmidt* patent.⁶ The record does not foreclose a reasonable jury from concluding that Defendants have not met their burden to establish invalidity based on anticipation by clear and convincing evidence.

⁶ Defendants do not specify or adequately describe how the *Kendall*, *Jones*, and *Breed* patents each anticipate the claims of the '253 patent. Without such an explanation or argument relating to each of these references individually, they have presented no basis to find anticipation based on any of these three specific prior art references. Defendants’ anticipation argument, and consequently the court’s order, focus on the *Marsh* and *Schmidt* patents.

In their reply brief, Defendants cite fifteen additional prior art references (patents) to support their argument that the “body of prior art provides unbiased, contemporaneous proof that inclusion of a sensor housing would be assumed.” (Defs.’ Reply at 2, n.2, & Exs. 16-30.) This evidence tends to establish the wide-spread use of protective housings used to encase crash sensors, but does not demonstrate, as a matter of law, that a single prior art reference anticipates the ‘253 claims. (See Defs.’ Reply Brief at Exs. 15-30.) Despite potentially strong arguments for anticipation by the *Marsh* patent, Defendants are not entitled to summary judgment of invalidity, as a matter of law, based on anticipation of the ‘253 claims in the prior art.

C. Obviousness Under 35 U.S.C. § 103

A patent may not be obtained . . . if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

35 U.S.C. § 103(a).

“An obviousness inquiry assesses ‘the differences between the subject matter sought to be patented and the prior art’ to ascertain whether ‘the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.’” *Beckson Marine, Inc.*, 292 F.3d at 725 (quoting 35 U.S.C. § 103(a)). “The grant of summary judgment of invalidity for obviousness must be done on a claim by claim basis.” *Knoll Pharm. Co. v. Teva Pharms. USA, Inc.*, 367 F.3d 1381, 1383 (Fed. Cir. 2004). A patent claim is invalid as obvious when the differences between the claimed invention and the prior art are such that one having ordinary skill in the art would have viewed the entire subject matter as

obvious at the time the invention was made. *Graham v. John Deere Co.*, 383 U.S. 1, 14 (1966).

A patent's presumption of validity requires that "[t]he accused infringer . . . prove by clear and convincing evidence that each claim that is challenged cannot reasonably be held to be non-obvious." *Id.* (citing *Monarch Knitting Machinery Corp. v. Sulzer Morat GmbH*, 139 F.3d 877, 881 (Fed. Cir. 1998)). Clear and convincing evidence exists when the movant "place[s] in the mind of the ultimate fact finder an abiding conviction that the truth of its factual contentions are 'highly probable.'" *Colorado v. New Mexico*, 467 U.S. 310, 316 (1994).

Obviousness is ultimately a legal determination, but is based on several underlying issues of fact. *Ruiz v. A.B. Chance Co.*, 234 F.3d 654, 663 (Fed. Cir. 2000). "[F]actual inquiries must be made concerning: (1) the scope and content of the prior art; (2) the level of ordinary skill in the art; (3) the differences between the claimed invention and the prior art; and (4) secondary considerations of nonobviousness . . . [which often include] commercial success, long-felt but unresolved need, failure of others, copying, and unexpected results," the so-called *Graham* factors. *Id.* (citing *Graham*, 383 U.S. at 17-18.))

As to the underlying facts, the movant retains the burden to establish them by clear and convincing evidence. *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1349 (Fed. Cir. 2001). However, as noted by the Federal Circuit in *EWP Corp. v. Reliance Universal, Inc.*, 755 F.2d 898, 905 (Fed. Cir. 1985), the burden to show obviousness "is more easily carried" when, as in this case, the prior art relied on in the federal district court was not before the Patent Trademark Office ("PTO") during examination or

reexamination of the patent. *Giora George Angres, Ltd. v. Tinny Beauty and Figure, Inc.*, 116 F.3d 1497, 1997 WL 355479, at *2 (citing *EWP Corp.*, 755 F.2d at 905.)).

“This is so because ‘[the court has] no PTO view before [it]’ on the references in question.” *Id.*; see also *American Hoist & Derrick Co. v. Sowa & Sons*, 725 F.2d 1350, 1359 (Fed. Cir. 1984) (“What the production of new prior art or other invalidating evidence not before the PTO does is to eliminate, or at least reduce, the element of deference due the PTO, thereby partially, if not wholly, *discharging* the attacker’s burden, but neither shifting nor lightening it or changing the standard of proof.”). Plaintiff does not dispute that the *Marsh* and *Schmidt* patents were not before the PTO examiner as prior art.

Federal Circuit precedent also “clearly establishes that the district court must make *Graham* findings before invalidating a patent for obviousness. *Ruiz*, 234 F.3d at 663. When obviousness is based on the teachings found in multiple prior art references, the moving party must establish some “suggestion, teaching, or motivation,” that would lead a person of ordinary skill in the art to combine the relevant prior art teachings in the manner claimed. See *Tec Air, Inc. v. Denso Mfg. Mich. Inc.*, 192 F.3d 1353, 1359-60 (Fed. Cir. 1999). This may be found in (1) the prior art references themselves, (2) the knowledge of those with ordinary skill in the art that certain references, or disclosures, are of special interest or importance in the field, or (3) from the nature of the problem to be solved. *Ruiz*, 234 F.3d at 665.

Courts are cautioned against the application of hindsight in making factual findings relating to the four obviousness factors. As one panel of the Federal Circuit recently noted:

Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references." *Dembiczak*, 175 F.3d at 999; see also *Ruiz*, 234 F.3d at 665 (explaining that the temptation to engage in impermissible hindsight is especially strong with seemingly simple mechanical inventions). This is because "[c]ombining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight." *Dembiczak*, 175 F.3d at 999. Therefore, we have consistently held that a person of ordinary skill in the art must not only have had some motivation to combine the prior art teachings, *but some motivation to combine the prior art teachings in the particular manner claimed*. See, e.g., *In re Kotzab*, 217 F.3d 1365, 1371 (Fed. Cir. 2000) ("Particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination *in the manner claimed*." (emphasis added)); *In re Rouffet*, 149 F.3d 1350, 1357 (Fed.Cir.1998) ("In other words, the examiner must show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination *in the manner claimed*." (emphasis added)).

Teleflex, Inc. v. KSR Intern. Co., 2005 WL 23377, at *3 (Fed. Cir. Jan. 6, 2005).

The non-moving party may also present evidence showing non-obviousness or refuting the movant's case. See *WMS Gaming, Inc. v. Int'l Game Tech.*, 184 F.3d 1339, 1359 (Fed. Cir. 1999).

D. Graham Factors

1. The Level of Ordinary Skill in the Art

First, the parties do not dispute the level of skill possessed by one with reasonable skill in the art. For purposes of this motion, Defendants agree with Plaintiff's view on this issue. Plaintiff has repeatedly maintained that "the level of ordinary skill in the art is defined by a person having a four-year degree in mechanical, electro-mechanical or automotive engineering, plus several years [of] experience in the field or

the equivalent.” (Pl.’s Resp. Ex. 1 at ¶¶ 5, 17.) As such, for purposes of deciding this motion, the court may presume this to be the level of skill possessed by one reasonably skilled in the art. See *Richardson-Vicks Inc. v. Upjohn Co.*, 122 F.3d 1476, 1481 (Fed. Cir. 1997) (parties did not dispute the level of ordinary skill).

2. Scope and Content of the Prior Art

Notably, Plaintiff does not contest that the *Marsh*, *Schmidt*, *Jones*, *Kendall*, and *Breed* patents constitute relevant prior art that one with ordinary skill in the art could consider alone or in combination. (See Defs.’ Mot. Br. at Exs. 9-11, 13-14.) Nor does Plaintiff challenge the validity of the fifteen patents cited in Defendants’ reply brief on the basis that these references do not constitute prior art that would have been considered by one having ordinary skill in the art at the time of the ‘253 patent prosecution.

Instead, Plaintiff argues that the court should strike the exhibits attached to Defendants’ reply brief because they were not included in the original motion. Although Plaintiff correctly states that it did not have an opportunity to address these exhibits in its response, it has not sought leave to file a sur-reply brief to address the merits of these exhibits as representative references within the prior art. If Plaintiff had serious substantive objections to these exhibits it should have offered them during oral argument or at least sought leave to file a sur-reply brief to address the materials. Despite the court’s clear indication during oral argument that Plaintiff’s motion to strike would be denied, Plaintiff has done neither. As such, the court will deny Plaintiff’s motion to strike Defendant’s reply brief and exhibits.

More importantly, the prior art references identified include various of the ‘253 inventor’s own patents obtained prior to the ‘253 patent and expressly demonstrate that

one with ordinary skill in the art would incorporate a housing to protect an impact sensor of the type claimed in the '253 patent. (See, e.g., Defs.' Reply at Exs. 15-21.) These patents represent sensors developed prior to the '253 patent and claim various impact and velocity change sensors every one of which employs a housing. (*Id.*) Without serious substantive objections to the inclusion of these references as prior art relevant to one with ordinary skill in the art, the court considers them as within the scope of prior art and that art demonstrates the common-sense and unavoidable conclusion that protective housings were naturally employed in various impact sensors when the '253 patent was prosecuted.

3. Differences Between the Prior Art and the Claims at Issue

Plaintiff does not dispute that *Marsh* and *Schmidt* disclose all of the claimed features for the claims at issue except for a housing. Plaintiff argues that the prior art fails to teach a housing and that the housing feature is critical because the other claim limitations at issue are specifically interrelated to and required the claimed housing feature. (Pl.'s Resp. at 6.) For example, Plaintiff does not dispute that the *Marsh* and *Schmidt* disclose a mass movable to respond to accelerations, but argues that these prior art references do not disclose such a mass movable *relative to a housing*. Nor does Plaintiff dispute that *Marsh* and *Schmidt* disclose a means responsive to the motion of a mass for initiating an occupant protection apparatus.

As discussed above, *Marsh* and *Schmidt* each teach a means for initiating. Like the '253 claims, *Marsh* teaches that the force generated in a collision brings a pair of contacts together, closing a circuit that initiates the protection device (a curtain in the *Marsh* device). (*Marsh*, Figure 7 & p. 1 lines 63-67, p. 2. lines 10-12, 54, 83-108.)

Schmidt expressly discloses an electronic switch having a mass that moves in response to the acceleration (in excess of predetermined value) to complete a circuit and trigger an occupant protection apparatus. (*Schmidt* Patent, col. 2, line 65 - col. 3, line 13.)

Schmidt also teaches an electronic means to sense the motion of the mass (see claim 11) by disclosing a sensing mass with a breakable connection that under sufficient acceleration separates, passes through an induction coil, and generates an electric current to initiate the air bag. (*Schmidt* col. 2 line 65 - col. 3, line 13.) Plaintiff also does not contest that these prior art references also disclose a means for mounting the inertial-type sensors onto the vehicle.

In arguing that the '253 claims at issue are not rendered obvious in light of the prior art identified by Defendants, Plaintiff maintains: (1) that Defendants' motion must be rejected because it does not precisely identify the exact manner in which the prior art is combined; (2) there is no "reason, suggestion, or motivation" in the prior art which would lead a person with ordinary skill in the art to "include a housing with the sensors disclosed in the *Marsh* and *Schmidt* patents to arrive at the claimed inventions set forth in claims 1, 11, 20, 30 and 39;" and (3) "even if one were to combine the five prior art patents relied upon by Defendants, one still would not arrive at the claimed invention set forth in claims 30 and 39." (See Pl.'s Resp. at 14-16; Dix Decl. at ¶¶ 15-22.)

Notwithstanding Plaintiff's arguments, the court concludes that one skilled in the art had motivation based on the prior art and would have included, at the time of the '253 patent, a housing to protect the sensor from the environment. In other words, the prior art references coupled with basic common sense attributed to one having ordinary skill in the art leads to the inescapable conclusion that there is a "reason, suggestion, or

motivation in the prior art” to include a protective housing not only in practicing the *Marsh* invention but also in designing or practicing an inertial-type impact sensor at the time of the ‘253 patent. There is no genuine material issue of fact in this regard.

The prior art must contain some “suggestion, teaching, or motivation,” that would lead a person of ordinary skill in the art to combine the relevant prior art teachings in the manner claimed. See *Tec Air, Inc. v. Denso Mfg. Mich. Inc.*, 192 F.3d 1353, 1359-60 (Fed. Cir. 1999). When determining the patentability of a claimed invention that combines elements of prior art, “the question is whether there is something in *the prior art as a whole* to suggest the desirability, and thus the obviousness, of making the combination.” *In re Rouffet*, 149 F.3d 1350, 1356 (Fed. Cir. 1998) (quoting *In re Beattie*, 974 F.2d 1309, 1311-12 (Fed. Cir. 1992) (emphasis added)). This suggestion of desirability may be found in the prior art references themselves or the knowledge of those with ordinary skill in the art that certain references. See *Ruiz*, 234 F.3d at 665.

The prior art as a whole is replete with crash sensors used in vehicles to protect and mount sensor components. First, the 1927 *Marsh* patent discloses a side impact crash sensor mounted on the exterior of the vehicle. As the court noted during oral argument, a person having ordinary skill in the art would almost certainly have sought to employ a protective housing to prevent corrosion or other external factors from rendering the contacts inoperable. Second, the ‘253 specification reflects the conclusion that it was known from the prior art that impact sensors would be best protected by incorporating a housing. The ‘253 specification itself states: “Sealing is very critical to the operation of crash sensors. The interior of a crash sensor must be protected from dust and moisture to avoid malfunctioning.” (‘253 patent at col. 10, lines

21-23.) Using a housing for protection from dust and moisture is also reflected in the 1972 *Jones* patent. (“A water resistant and dust proof cover is coaxially disposed around the active component.”) Use of a housing for an electro-mechanical sensor was not a novel concept at the time of the ‘253 patent.

Third, the ‘253 inventors admitted during patent prosecution that “[a]ll electromechanical sensors have a sensing mass, a *housing*, contacts and a biasing means as shown the Norton patent and other patents.” (Defs.’ Mot. Br. Ex. 3 at 14; 12/27/90 Amendment (emphasis added).) Fourth, Plaintiff has identified multiple other patents, including the ‘253 inventor’s own prior art, demonstrating that encasing a crash sensor within a housing is so elementary that it would be assumed by a person with ordinary skill in the art. (See Defs.’ Reply at Exs. 15-30.)

Given this strong evidence, the court necessarily finds motivation for one skilled in the art to combine a housing element with the other prior art references, namely the *Marsh* and *Schmidt* patents. Plaintiff’s expert opines that it would not have been obvious to one of ordinary skill in the art to combine the teaching of the *Marsh* patent with the other prior art teaching a protective housing for such a sensor because “[i]t would not have been apparent at the time the invention was made, that a housing with its own mounting means could be included in the arrangement set forth in the *Marsh* patent.” (Dix Decl. at ¶ 21.) This conclusory opinion, however, ignores the overwhelming suggestion in the prior art that a protective housing is necessary for *all* electromechanical sensors. Dix fails to explain how one skilled in the art could ignore the obvious need and the desirability for a protective housing evident not only in the body of prior art, but also well within the common sense of a person having ordinary skill

in designing vehicle impact sensors. See *Telemac Cellular Corp.*, 247 F.3d at 1328 (“Broad conclusory statements offered by [] experts . . . are not evidence and are not sufficient to establish a genuine issue of material fact.”).

Despite the clear evidence and admission by the ‘253 inventor that all electromechanical sensors include a protective housing, Plaintiff argues that one of ordinary skill in the art would not be motivated to include a housing with features required in the ‘253 patent with the sensors disclosed in the *Marsh* and *Schmidt* patents. (See Dix Decl. at ¶ 19.) Dix offers his opinion that *Schmidt* contains no teaching or suggestion of a housing wherein the mass would move relative to such housing. In fact, he states that *Schmidt* teaches away from employing a housing because the mass in the *Schmidt* invention is attached directly to the frame of the vehicle. (*Id.* at ¶ 20.) According to Dix, the mass in the *Schmidt* sensor “cannot possibly be disposed within a housing of the type disclosed in the *Breed* and *Jones* patents, because it is attached directly to the vehicle frame.” (*Id.*) Likewise, Dix opines that a person with reasonable skill in the art would also not know to employ a protective housing in combination with the inertial-type sensor claimed in *Marsh*. (*Id.* at ¶ 21.)

The court agrees with Defendants in that Dix has failed to explain why a protective housing (such as the “water resistant and dust proof cover” disclosed in *Jones* or a similar housing admittedly used for all electromechanical sensors) would not be implemented by one having ordinary skill in the art simply by bolting or otherwise fastening a cover or housing around the sensors described in *Marsh* and *Schmidt* (sensors having all of the claim elements of the ‘253 claims at issue here except the housing). With this simple, obvious additional housing element, the *Marsh* and *Schmidt*

sensors have all the disputed claim features including: a housing, a mass within said housing, and a means for mounting said housing. The addition of a housing around the existing sensors disclosed in the prior art would make the masses disclosed movable relative to the said housing, as the '253 claims.

Despite the clear and convincing evidence that the prior art references teach the use of a protective housing, the court is not convinced that, as a matter of law, the prior art teaches one skilled in the art to combine the references in a manner to achieve reliable sensing in the side impact context. As Dix explains: “[t]he importance of the housing lies *not only in its physical protective value*, but in several additional respects including providing structure for the mounting means, sealing of the lead carrying the signal, and allowing the mass to be placed within the housing and to be movable relative to the housing to provide damping. The damping aspect permits Breed's invention to discriminate side-impact crashes and other events as described in the '253 patent.” (Dix Decl. at 3 n.1.) In the '253 specification, the inventors describe a sealed housing to assure the proper damping effect. This permits the sensing mass to be opposed by a nonlinear damping force which is used to deal with the unique needs of sensing the various types of side-impacts. Defendants have not produced clear and convincing evidence that establishes that this use of a sealed housing to provide the required damping is obvious in light of the prior art. While the *protective function* of a housing was obvious, whether the other design characteristics of the sensor described by the patent specification were obvious remains a triable issue of fact.

Upon consideration of the primary factors of obviousness, the differences between the prior art and the current claims (i.e. the lack of a housing) are such that

one having ordinary skill in the art would obviously know to provide a protective housing and would therefore have viewed this subject matter as obvious at the time the '253 claims were made.

However, Defendants have not presented clear and convincing evidence to establish the obviousness of the importance of using the housing beyond mere protection, including providing structure for the mounting means, sealing of the lead carrying the signal, and allowing the mass to be placed within the housing and to be movable relative to the housing to provide damping. The court is not convinced that the prior art renders obvious, as a matter of law, the design characteristics of the invention which enable the side-impact to sensor to discriminate between side-impact crashes and other events as described in the '253 patent.

4. Secondary Considerations

Secondary considerations such as commercial success, long felt but unresolved need, the failure of others to invent, and unexpected results are essential components of the obviousness determination and must also be considered by the court. See *In re Rouffet*, 149 F.3d at 1355; *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 719 (Fed. Cir. 1991). Although, these secondary considerations must be considered, they do not control the question of obviousness. *Newell Cos. v. Kenny Mfg. Co.*, 864 F.2d 757, 768 (Fed. Cir. 1988); see also *Richardson-Vicks Inc.*, 122 F.3d at 1483; *Ryko*, 950 F.2d at 719 n.26. Moreover, a district court may grant summary judgment based on a finding of obviousness even when resolving all secondary consideration evidence and justifiable inferences in favor of patentee if such secondary considerations are considered but fail

to “carry sufficient weight to override a determination of obviousness based on primary considerations.” *Ryko*, 950 F.2d at 719.

Plaintiff first claims that it has produced strong evidence establishing “astounding” commercial success of the patented invention. Plaintiff cited David S. Breed’s December 22, 2004 declaration and Dix’s declaration for support. According to Breed, over 40 million electronic capacitance-type or Piezo-type side impact sensors have been mounted in vehicles since the late 1990s. (Breed Decl. at ¶ 7.) Dix also claims that there has been widespread success. This opinion is based on his review of Breed’s declaration (a bit of bootstrapping) and his understanding of the 2003 Airbag Quick Reference Guide. (Dix Decl. at ¶ 23.) Even if such evidence establishes widespread commercial success of the type of side impact sensors described by Breed, “that success is relevant in the obviousness context *only if there is proof that the sales were a direct result of the unique characteristics of the claimed invention--as opposed to other economic and commercial factors unrelated to the quality of the patented subject matter.*” *In re Huang*, 100 F.3d at 140 (emphasis added).

Here, Breed states: “I have examined a number of these sensors obtained from commercially-sold vehicles. Each sensor appears to have a housing, a mass within the housing which is moveable to the motion of the mass upon acceleration of the housing, various means response to the motion of the mass upon acceleration of the housing in excess of a predetermined threshold value for initiating an occupant protection apparatus, and means for mounting the housing onto the vehicle.” (Breed Decl. at ¶ 8.) Dix simply offers his conclusory opinion that the commercial success is related to the claimed features of the ‘253 patent. This evidence if supported might demonstrate that

the sales were the direct result of unique characteristics of the '253 claims as opposed to other factors such as the obviousness of employing a side impact inertial-type sensor with a protective housing as clearly reflected in the prior art. On the other hand, Breed acknowledges that the need for the type of sensors he has claimed "continues today and will be driven in the future by government regulations, including regulations in the final phase of adoption mandating side airbags on every automobile sold in the United States by 2009." (*Id.*) This government based source of motivation might prove to be an alternative reason explaining the widespread use of the type of impact sensors used.

Next, Plaintiff argues that the '253 patent satisfied a long felt but unresolved need for suitable side impact sensors in the auto industry. According to Plaintiff, the long felt need for effective side impact crash sensors existed as early as 1927 and more recently came to a head during the 1970s when the automobile industry began to work more seriously on air bag technology. (See Pl.'s Resp. at 18; Breed Decl. ¶ 8; Dix. Decl. at ¶ 24.) Plaintiff cites opinion testimony that the commercial success of the inertial-type side impact crash sensors was solved by the '253 invention. (*Id.*) Defendants, however, correctly note that Plaintiff's evidence fails to explain how the '253 patent solved the need as opposed to the prior art.

Plaintiff also points to the failure of others to find a solution. (Breed Decl. at ¶ 9; Dix Decl. at ¶ 25.) This evidence focuses on the failed attempts to employ a crush-type sensor to sense side impact crashes. (*See id.*) In fact, Breed states, "I am unaware of anyone involved in actually designing automotive crash sensors prior to the '253 patent invention who focused on using moveable mass technology to solve the problem. Instead, I am aware of various researchers who were focused on using a crush sensor

for side impacts.” (Breed Decl. at ¶ 9.) Notwithstanding his claim that he was unaware of anyone designing crash sensors based on movable mass technology, he also states, without citing the specific prior art, that he is “aware of prior art that taught away from using inertial-type sensors to detect side impacts because they were considered to be too slow to react to a crash.” (*Id.* at ¶ 10.) Breed identifies his patented inertial-type side sensors as “movable mass” sensors. (See *id.* at ¶ 11.)

Plaintiff has also filed the January 11, 2005 declaration of Andrew Kochanowski (counsel for Plaintiff). In this declaration, Kochanowski cites portions of the deposition of fact witness Dr. Carl. C. Clark, taken December 30, 2004. He claims that Dr. Clark’s testimony provides further evidence that the ‘253 patent resolved a long-standing need in the industry. (01/11/05 Kochanowski Decl. at ¶ 2.) Dr. Clark testified that in 1965 he conducted research into side impact air bags. (Clark Dep. at 16-17, 25.) Clark proposed a side impact air bag system, but “did not pay attention to the sensing to trigger that air bag.” (*Id.* at 17.) In fact, Clark testified that he was focusing on “crash anticipation” where triggering could be in anticipation of the crash, rather than waiting for impact to occur. (*Id.*) According to Plaintiff, the ‘253 patent solved many of the problems associated with the crush type sensors by showing, despite the unidentified “conventional wisdom” and teachings to the contrary, that inertial-type sensors could work in sensing side impacts.

Lastly, Plaintiff argues the patented inertial-type side impact sensors provided unexpected results because “contrary to conventional wisdom at the time, they did in fact activate in a timely fashion in order to deploy an air bag during a side impact.” (Pl.’s Resp. at 19; Breed Decl. at ¶¶ 9-10; Dix Decl. at ¶ 25.)

The secondary considerations do not alter the court's conclusion that a triable issue of fact remains as to the obviousness of the claimed invention. Taking this evidence in a light most favorable to Plaintiff tends to support Plaintiff's claim of non-obviousness.

III. DEFENDANT DELPHI'S LACK OF ENABLEMENT MOTION

A. Background

Defendant Delphi brings its current motion arguing that it is entitled to partial summary judgment on Plaintiff's infringement claims based on lack of enablement. Defendants argue that the claims of the '253 patent that cover an electronic sensor are invalid for failing to meet the enablement requirement of 35 U.S.C. § 112 ¶ 1 because the patent's specification fails to teach those skilled in the art how to make and use the full scope of the claimed invention without undue experimentation.

Defendant's motion focuses on the means-plus-function claim limitations contained in independent claims 1, 20, 30, and dependent claim 11 of the '253 patent, with particular emphasis on the claimed inventions' means for sensing and initiating an occupant protection apparatus.⁷

Claim 1 of the '253 patent provides:
A side impact crash sensor for a vehicle having front and rear wheels, said sensor comprising:

- (a) a housing;
- (b) a mass within said housing movable relative to said housing in response to accelerations of said housing;

⁷ Defendants argue that dependent claims 2-7, 11-14, 16, 18, 22-25, 27, 31-36, and 39-43 are also invalid because they depend on independent claims that are not enabled and the '253 specification fails to disclose any structure for an electronic sensor meeting the limitations found in these dependent claims.

(c) means responsive to the motion of said mass upon acceleration of said housing in excess of a predetermined threshold value, for initiating an occupant protection apparatus; and

(d) means for mounting said housing onto at least one of a side door of the vehicle and a side of the vehicle between the centers of the front and rear wheels, in such a position and a direction as to sense an impact into the side of said vehicle

(‘253 Patent Claim 1. (emphasis added).)

Similarly, Claim 20 describes a side-impact sensor including a “means responsive to the motion of said mass to a second position upon acceleration of said housing in excess of a predetermined threshold value,” and Claim 30 describes a side impact crash sensor for a vehicle having front and rear wheels with a “means responsive to the motion of said mass upon acceleration of said housing in excess of a predetermined threshold value, for initiating an occupant protection apparatus.” (‘253 patent.)

In addition, Claim 11 recites “the invention in accordance with claim 1 wherein electronic means are provided to sense the motion of said mass.” (*Id.*) In its current motion, Defendant Delphi challenges whether the ‘253 patent provides enabling disclosure for a side impact *electronic sensor*.⁸

In its March 31, 2004 “Order Construing Claims,” the court held that these claim limitations were “means-plus-function” limitations under 35 U.S.C. § 112, with the stated function of “initiating an occupant protection apparatus.” (See 03/31/04 Order at 6, 12, 14-22, and 32-33.) At the claim construction phase, the parties disputed whether the ‘253 specification satisfied 35 U.S.C. § 112, ¶ 6, requiring the patent to identify and

⁸ Defendant Delphi does not argue that the ‘253 specification fails to enable a mechanical side impact sensor. (See Hensler Dep. at 33.)

disclose corresponding structure. The court ruled that the '253 specification did provide sufficient corresponding structure clearly linked to the stated function of initiating the occupant protection apparatus, but specifically noted that it was not passing on any of Defendants' claims of invalidity. (*Id.* at 15-16, 20, and 33.) The court's claim construction chart provides:

<p>Claim 1 (c) . . . said sensor comprising: "means responsive to the motion of said mass upon acceleration of said housing in excess of a predetermined threshold value, for initiating an occupant protection apparatus"</p>	<p>This limitation is in the means-plus-function format as permitted by 35 U.S.C. § 112. The function is initiating an occupant protection apparatus.</p> <p>Corresponding structure includes mechanical switches with two contacts that engage in response to a force of sufficient magnitude and duration, and their equivalents. The specification identifies such mechanical switches in Figures 1 and 2 at column 6, lines 7-32; Figure 5 at column 8, lines 53-60; Figure 6 at column 8, lines 61-66; and Figures 8 and 9, lines 30-60.</p> <p>Corresponding structure also includes an electronic switch or assembly as described in Figure 11 at column 10, lines 3-14 of the patent specification and its equivalents. The electronic switch or assembly contains a sensing mass that moves relative to the housing in response to the acceleration of the housing caused by a side impact crash.</p>
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The court further explained its construction in relevant part as follows:

The parties agree that the function to be performed by the claim limitation is the initiation of an occupant protection apparatus ("OPA"). The parties' dispute does not center on the stated or claimed function, but rather on the corresponding structure. Plaintiff contends that the specification identifies the corresponding structure to include "a mechanical switch or

an electronic switch or assembly, such as a sensing mass within a housing that includes an electronic sensor.” (Joint Mem. at 1.) Defendants assert that the only clearly linked structure identified in the specification is a “bi-state switch that has a pair of metal contacts that close an electrical circuit when [they] engage each other.” (Defs.’ *Markman Br.* at 14.)

After reviewing the entire specification and the parties’ proposed constructions, the court finds that the specification contains several corresponding structures clearly linked to the stated function of initiating the OPA. The ‘253 specification includes several descriptions of mechanical switches as preferred embodiments that would perform the stated function of initiating the OPA. Specifically, Figures 1 and 2, and the corresponding description in column 6 of the specification describe a type of mechanical switch that would initiate the OPA. The specification sets out corresponding structure by describing a mechanical device with two contacts that initiate the OPA when they make contact. (‘253 Specification Figs. 1, 2 & column 6, lines 7-32.) The contacts described in the specification are to engage in response to a crash pulse or force of an appropriate magnitude and duration. (*Id.*) Likewise, the specification clearly includes other examples of mechanical switches that could be used as a means for initiating the OPA. (See ‘253 specification Fig. 5 & column 8, lines 53-60; Fig. 6 & column 8, lines 61-66; Figs. 8, 9 & column 9, lines 30-60.) In each description, a mechanical switch assembly carries out the function of initiating the OPA. The specification’s descriptions of these mechanical switches identify two contacts that engage after a force of appropriate magnitude and duration is applied to the housing. Accordingly, the court finds that the corresponding structure for initiating an OPA includes the mechanical switch assemblies that contain two contacts that initiate the OPA when engaged.

Plaintiff also argues that corresponding structure for initiating the OPA includes “an electronic switch or assembly.” (Joint Mem. at 1.) Plaintiff asserts that corresponding structure is identified for this electronic means in the specification. Plaintiff’s position is strengthened in light of dependent Claim 11. Claim 11 states an “invention in accordance with claim 1 wherein electronic means are provided to sense the motion of said mass.” (‘253 Patent at column 11, lines 32-34.) Plaintiff directs the court’s attention to Figure 11 and column 10, lines 3-14 of the specification as evidence of corresponding structure meeting the requirements of 35. U.S.C. § 112 ¶6. (Pl.’s Reply at 5.) Defendants argue that Figure 11 and the specification text cited in column 11 provide no structure linked to the function of initiating an OPA. (Defs.’ *Markman Br.* at 15-16.) Defendants argue that the electronic switch or assembly described is not corresponding structure and that it fails to meet the requirements of § 112 ¶6 because it is not clearly linked to the stated function of initiating the

OPA. Further, Defendants assert that the lack of corresponding structure concerning the alleged electronic means for initiating the OPA renders Claims 1 and 11 invalid.

...

The issue for the court is whether Figure 11 and the text set forth above clearly link or associate the electronic sensing switch assembly to the means of initiating the OPA. See *B. Braun Medical Inc.*, 124 F.3d at 1424. In other words, the court must determine if Plaintiff satisfied the quid pro quo of electing to use the means-plus-function format. The court finds that specification contains corresponding structure clearly linked to the means for initiating the OPA in the form of an electronic means for initiating an OPA.

...

Upon review of the entire specification and claim language, the court finds that the electronic switch assembly is clearly associated as corresponding structure. Consequently, the requirements of § 112 ¶6 are met. Figure 11 and its textual description found in column 10, lines 3-14 of the '253 specification provide a potential alternative structure for initiating the OPA. The specification states that the "motion of the sensing mass 202 can be sensed, by a variety of technologies," and Figure 11 shows a potential electronic switch very similar to the preferred mechanical switches described elsewhere in the specification. ('253 Specification at column 10 (emphasis added).)

The court finds that the patent specification contains corresponding structure to the means for initiating the OPA, including an electronic switch or assembly device similar to the mechanical switches described in the specification. The '253 specification contains mechanical and electronic corresponding structures that are clearly linked to the stated function as required by 35 U.S.C. § 112 ¶6.

...

Claim 11 is dependant on Claim 1 and is also written in means-plus-function format. The inventors specifically claim "[t]he invention in accordance with Claim 1 wherein electronic means are provided to sense the motion of said mass." ('253 Patent Claim 11.) The parties agree that the stated function of this claim language is to "sense the motion of the mass." (Joint Mem. at 4.) As discussed above, Plaintiff asserts that clearly linked corresponding structure can be found in column 10, lines 3-14 of the specification and Figure 11. Defendants assert that the specification discloses no structure and the claim is therefore invalid. For

the reasons already set forth above, the court finds that corresponding structure exists and that the specification, when read in its entirety, clearly links the structure to the stated function of sensing the motion of the mass. Electronic means will include those electronic structures consistent with those means disclosed in the specification that would have been known by a person having ordinary skill in the art at the time of filing of the patent application.

Again, the court declines the invitation to decide the validity issues raised by Defendants' proposed construction. Disclosure of structure corresponding to a means-plus-function limitation is limited to the specification; however, "[such corresponding structure] may be implicit in the written description *if it would have been clear to those skilled in the art* what structure must perform the function recited." *Atmel*, 198 F.3d at 1380 (quoting PTO proposed Supplemental Examiner Guidelines that incorporate the Federal Circuit's approach for determining whether adequate structure has been disclosed) (emphasis added). A failure to adequately describe the necessary structure, material, or acts in the written description would fail to comply with 35 U.S. C. § 112 ¶2, raising a validity issue, not a claim construction issue.

(*Id.* at 15-19 & 31-32.)

The relevant disclosures in the '253 patent's specification include Figure 11 (depicted below) and the text from column 10, lines 3-14 (cited below).

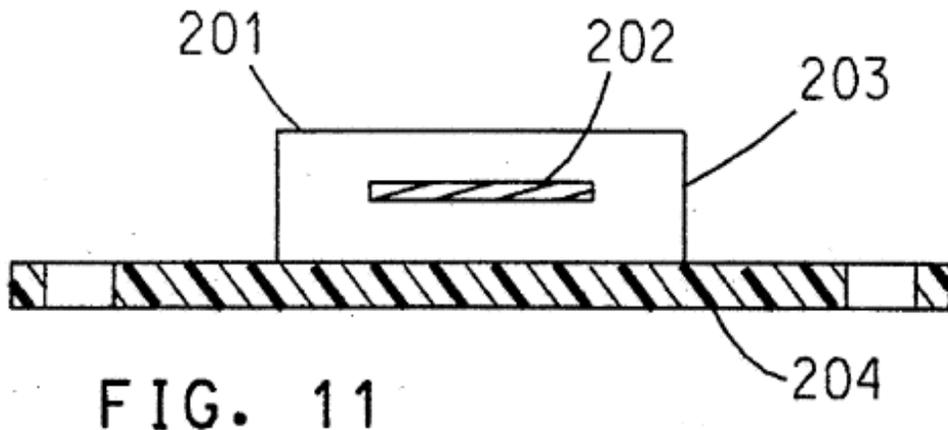


FIG. 11 is a conceptual view of an electronic sensor assembly 201 built according to the teachings of this invention. This sensor contains a sensing mass 202 which moves relative to the housing 203 which accompanies a side impact crash. The motion of the sensing mass 202 can be sensed by a variety of technologies using, for example, optics, resistance change, capacitance change or magnetic reluctance change. Output from the sensing circuitry can be further processed to achieve a variety of sensor response characteristics as desired by the sensor designer.

(‘253 Patent at column 10, lines 3-14.)

Delphi maintains that the ‘253 patent discloses only specific types of acceleration-based *mechanical* sensors and that the conceptual and textual disclosures relating to *electronic* sensors fail to meet the statutory requirements for enablement. Delphi argues that there is no disputed issue of fact that: (1) the ‘253 patent specification provides no teaching or disclosure of a side impact electronic sensor; and (2) one skilled in the art could not make or build such a sensor base on the teachings of the ‘253 patent without undue experimentation.

Delphi argues that it has presented sufficient evidence of invalidity as a matter of law because the ‘253 specification fails to teach (enable) one skilled in the art how to make and use an electronic side impact crash sensor without undue experimentation, the ‘253 specification (rather than the knowledge of one skilled in the art) fails to supply the novel aspect of using “an inertial or acceleration sensor on a motor vehicle for sensing side impacts,” and the specification’s disclosures are merely conceptual, at best predicting the future invention of an electronic side impact inertial or acceleration sensor without any details.

Conversely, Plaintiff argues that Delphi’s motion must fail because: (1) it is erroneously “premised on an answer to a question no one asks: whether the

specification of the ‘253 Patent would enable one to make a commercially-viable product;” (2) Defendant’s admissions that the ‘253 patent contains sufficient disclosures to enable one skilled in the art to manufacture a mechanical inertial-based side crash sensor and that each of the electronic accelerometer technologies disclosed in the patent were known in 1989 establish sufficient enabling disclosures to support the claims as written; and (3) Defendant has failed to meet its burden to show invalidity for lack of enablement based on clear and convincing evidence.

B. Lack of Enablement Under 35 U.S.C. § 112, ¶ 1

Every patent is presumed valid, including a presumption that the patent complies with the statutory requirements of § 112. See 35 U.S.C. § 282; *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 941 (Fed. Cir. 1990). As such, invalidity for lack of enablement is a conclusion of law that must be supported by facts showing a failure to enable by clear and convincing evidence. See *Nat’l Recovery Technologies, Inc. v. Magnetic Separation Sys., Inc.*, 166 F.3d 1190, 1195 (Fed. Cir. 1999); *Koito Mfg. Co., Ltd. v. Turn Key Tech, LLC*, 381 F.3d 1142, 1149 (Fed. Cir. 2004) (“Enablement is a matter of law that we review without deference; however, [the Federal Circuit] reviews the factual underpinnings of enablement for substantial evidence.”).

35 U.S.C. § 112, ¶ 1 contains the so-called “enablement” requirement. It provides as follows:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains . . . to make and use the same

35 U.S.C. § 112, ¶ 1.

Claims that are not enabled by the patent's specification are invalid. See, e.g., *AK Steel Corp. v. Sollac & Ugine*, 344 F.3d 1234, 1245 (Fed. Cir. 2003). "[A]s part of the *quid pro quo* of the patent bargain, the applicant's specification must enable one of ordinary skill in the art to practice the full scope of the claimed invention." *Id.* "The enablement requirement ensures that the public knowledge is enriched by the patent specification to a degree at least commensurate with the scope of the claims." *Nat'l Recovery*, 166 F.3d at 1196.

The enablement requirement is met "when one skilled in the art, after reading the specification, could practice the claimed invention without undue experimentation." *AK Steel Corp.*, 344 F.3d at 1244 (citing *In re Wands*, 858 F.2d 731, 735 (Fed. Cir. 1988)); see also *Genentech Inc. v. Novo Nordisk, A/S*, 108 F.3d 1361, 1365 (Fed. Cir. 1997) ("[T]o be enabling, the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without 'undue experimentation.'") (quoting *In re Wright*, 999 F.2d 1557, 1561 (Fed. Cir. 1993)).

"The scope of enablement . . . is that which is disclosed in the specification plus the scope of what would be known to one of ordinary skill in the art without undue experimentation." *Nat'l Recovery*, 166 F.3d at 1196. "Whether claims are sufficiently enabled by a disclosure in the specification is determined as of the day that the patent application was first filed." *Enzo Biochem Inc. v. Galgene, Inc.*, 188 F.3d 1362, 1371 (Fed. Cir. 1999). "The enablement requirement is met if the description enables any mode of making and using the claimed invention." *Engel Indus., Inc. v. Lockformer Co.*, 946 F.2d 1528, 1533 (Fed. Cir. 1991).

Enablement does not require that a specification satisfy particular commercial requirements for production of a commercially-viable product. See *CFMT Inc. v. Yieldup Int'l Corp.*, 349 F.3d 1333, 1339 (Fed. Cir. 2003) (“Patents are not production documents, and nothing in the patent law requires that a patentee must disclose data on how to mass produce the invented product [T]he law requires that patents disclose inventions, not mass-production data, and that patents enable the practice of inventions, not the organization and operation of factories.”) (quoting *Christianson v. Colt Indus. Operating Corp.*, 822 F.2d 1544, 1562 (Fed. Cir. 1987)).

The Federal Circuit has “repeatedly explained that a patent applicant does not need to include in the specification that which is already known to and available to one of ordinary skill in the art.” *Koito Mfg Co.*, 381 F.3d at 1156.

Clarifying this principle, [the Federal Circuit] has explained: "That is not to say that the specification itself must necessarily describe how to make and use every possible variant of the claimed invention, for the artisan's knowledge of the prior art and routine experimentation can often fill gaps, interpolate between embodiments, and perhaps even extrapolate beyond the disclosed embodiments, depending upon the predictability of the art." *AK Steel Corp. v. Sollac*, 344 F.3d 1234, 1244 (Fed. Cir. 2003).

Chiron Corp. v. Genentech, Inc., 363 F.3d 1247, 1253 (Fed. Cir. 2004).

A patentee need not spell out details known in the art; but must still reasonably supply the novel aspects of the invention in order to provide adequate enablement. *Genentech Inc.*, 108 F.3d at 1366; see also *Emergency Fuel, LLC v. Penzoil-Quaker State Co.*, 71 Fed.Appx. 826, 831, No. 02-1391, 2003 WL 21772131, at *4 (Fed. Cir. July 25, 2003) (“[K]nowledge in the art can merely supplement, but [can]not be a substitute for, a basic enabling disclosure.”) (citing *Genentech*, 108 F.3d at 1366). As the *Genentech* court explained in detail,

Patent protection is granted in return for an enabling disclosure of an invention, not for vague intimations of general ideas that may or may not be workable. See *Brenner v. Manson*, 383 U.S. 519, 536, 86 S.Ct. 1033, 1042-43, 16 L.Ed.2d 69, 148 USPQ 689, 696 (1966) (stating, in context of the utility requirement, that "a patent is not a hunting license. It is not a reward for the search, but compensation for its successful conclusion.") Tossing out the mere germ of an idea does not constitute enabling disclosure. While every aspect of a generic claim certainly need not have been carried out by an inventor, or exemplified in the specification, reasonable detail must be provided in order to enable members of the public to understand and carry out the invention

It is true, as Genentech argues, that a specification need not disclose what is well known in the art. See, e.g., *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1385, 231 USPQ 81, 94 (Fed. Cir. 1986). However, that general, oft-repeated statement is merely a rule of supplementation, not a substitute for a basic enabling disclosure. It means that the omission of minor details does not cause a specification to fail to meet the enablement requirement. *However, when there is no disclosure of any specific starting material or of any of the conditions under which a process can be carried out, undue experimentation is required; there is a failure to meet the enablement requirement that cannot be rectified by asserting that all the disclosure related to the process is within the skill of the art. It is the specification, not the knowledge of one skilled in the art, that must supply the novel aspects of an invention in order to constitute adequate enablement.*

Genentech Inc., 108 F.3d at 1366 (emphasis added).

The inquiry focuses on whether a person having ordinary skill in the art can make and use the invention claimed without *undue* experimentation. *Enzo*, 188 F.3d at 1371 (“[A] patent specification complies with the statute even if a ‘reasonable’ amount of routine experimentation is required to practice a claimed invention, but that such experimentation must not be ‘undue.’”).

In *In re Wands*, the Federal Circuit set forth a number of factors a court may consider in determining whether a disclosure would require undue experimentation. These factors include: (1) the quantity of experimentation necessary; (2) the amount of direction or guidance presented; (3) the presence or absence of working examples; (4)

the nature of the invention; (5) the state of the prior art; (6) the relative skill of those in the art; (7) the predictability or unpredictability of the art; and (8) the breadth of the claims. *In re Wands*, 858 F.2d at 737. A court should, but need not, consider *all* of these factors when determining if a disclosure is enabling. *Enzo*, 188 F.3d at 1371.

C. The '253 Patent Specification Fails to Teach Those Skilled in the Art How to Make and Use a Side Impact Sensor With an Electronic Means for Initiating an Occupant Protection Apparatus.

The relevant portion of the '253 specification pertaining to a sensor with an electronic "means responsive to the motion of said mass upon acceleration of said [sensor] housing in excess of a predetermined threshold value, for initiating an occupant protection apparatus" is found at Figure 11 and column 10, lines 3-14. These portions of the specification, however, fail to provide sufficient details to teach a person skilled in the art how to make and use an electronic sensor. The specification's text describes a "conceptual view of an electronic sensor assembly." ('253 Patent Specification, Col. 10, lines 3-14.) The text generally references existing technologies such as "optics, resistance change, capacitance change, or magnetic reluctance change" that might conceivably be used. However, the specification fails to disclose structure for any of these technologies or a reasonable description of how a person having ordinary skill in the art would use these to make and use these technologies to practice the invention.

ATI's representative Dr. Breed admits that the specification fails to disclose structure for these general references to sensing technology. (Breed Dep. at 164-66; Def.'s Mot. Br., Ex. B.) Figure 11 is admittedly conceptual in nature and is not meant to represent any specific design. (*Id.* at 169.) Although the specification need not provide commercial product blueprints, when reading the specification's vague text with the

conceptual Figure 11 the court finds no basis *in the specification* showing *how* a person having ordinary skill in the art would make and use the electronic version of a side impact sensor claimed. See *Genentech*, 108 F.3d at 1366.

The '253 specification fails to show any output from the generically referenced sensing circuitry and fails to describe how the output from this general sensing technology could be processed to achieve the desired and novel characteristics of the invention, including how to achieve the desired response characteristics for the side impact sensor.

During patent prosecution, Plaintiff characterized the use of “an inertial or acceleration sensor on a motor vehicle for sensing side impacts” as the “essential concept” of its invention. (Def.’s Mot. Br., Ex. G at 6 (May 1, 1992 Amendment Remarks).) Plaintiff repeatedly asserted that no one had previously used an acceleration type sensor to successfully detect side impact crashes and that “it was universally believed that [a] crush type sensor [was] the only type of sensor that could sense side impacts in time.” (Def.’s Mot. Br., Ex. F (Dec. 27, 1990 Amendment); see *also* Def.’s Mot. Br. Exs. H & G (May 1, 1992 Amendment and Nov. 13 1992 Amendment).) The use of acceleration type sensors was described as novel, unobvious, and a “breakthrough” in side impact crash sensing. (*Id.*, Ex. F at 12, 14.) Plaintiff asserted that it was not possible to create a side impact sensor by merely taking a frontal impact acceleration type sensor and using it on the side of a vehicle. For example, in May 1992, the inventors explained:

Although in 1989 inertial (acceleration sensor had long been in use as the primary means for triggering airbags for protection against front end collision, it is significant that no one (except the applicants) believed at this

time that acceleration sensors [properly designed] could be used to detect side impacts.

(Def.'s Mot. Br., Ex. G at 10.)

The '253 specification, however, fails to disclose reasonable basic enabling structure to show how one skilled in the art would use existing electronic sensing technologies to achieve the desired novel characteristics of an electronic acceleration sensor. The court fails to comprehend how Plaintiff's claimed electronic sensors could be non-obvious if the entire basis to make and use an electronic acceleration type sensor was known to a person having ordinary skill in the art. Defendant's expert identifies at least two distinct problems one with ordinary skill in the art would encounter in making an using an electronic side impact crash sensor based on the '253 specification: (1) how to sense the motion of the mass to properly output a stream of data; and (2) how to appropriately process this data to determine if the "motion of [the] mass upon acceleration of [the sensor's] housing" exceeds a predetermined threshold value, triggering the initiation of an occupant protection apparatus. (Hensler Decl. at ¶ 10 (Def.'s Mot. Br., Ex. L).)

Examining the *In re Wands* factors supports the court's conclusion regarding the non-enablement of a side impact sensor meeting the claim limitations with an electronic means for initiating.

1. The Quantity of Experimentation Necessary

The question of undue experimentation is a matter of degree. "The fact that some experimentation is necessary does not preclude enablement; what is required is that the amount of experimentation 'must not be unduly extensive.'" *PPG Indus., Inc. v. Guardian Indus., Corp.*, 75 F.3d 1558, 1564 (Fed. Cir. 1996). The quantity of

experimentation, however, is less important than the type. *In re Wands* 858 F.2d at 737 (“The test is not merely quantitative, since a considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed.”)

Defendant’s expert testified that a great deal of non-routine experimentation would have been necessary to use or make an electronic sensor based on the ‘253 specification. (Hensler Decl. at ¶¶ 10-21.) He states that one skilled in the art in 1990 would have had to engage in a significant amount of experimentation to build or modify a commercial sensor to detect the motion of the “sensing mass” as claimed in the invention. (*Id.* at ¶ 11.) He further avers that a person of skill in the art would “have had to provide signal processing to determine whether the signal data indicated that predetermined firing threshold had been exceeded,” and that “this processing means could not have been obtained commercially in 1990.” (*Id.* at ¶ 12.) He states that it would have taken a great deal of costly experimentation to design or incorporate a microprocessor and algorithm to process the data recorded by an electronic side impact sensor and that a person of skill in the art would not possess the skills and ability to design “digital electronic circuits and implement programmable devices” to practice the invention. (*Id.* at ¶ 14.)

Hensler also describes the differences in the way electronic sensors detect side impacts as compared to mechanical switch sensors. (*Id.* at ¶ 22.) A mechanical switch triggers when the inertial mass moves in a certain way to close a contact triggering an airbag and the physical properties of the switch determine when to trigger inflation. (*Id.*)

In contrast, he explains that an electronic sensor monitors characteristics of a mass over time to produce data that is processed by a complex computer algorithm. (*Id.*) According to Hensler the algorithm is used to take the output signal from the sensing circuitry that electrically monitors the strain imposed on a mass and mathematically filters and process this output in a manner to ensure the desired triggering characteristics of the side impact sensor. (See *id.* at ¶ 24.) Accordingly, he concludes that a person having ordinary skill in the art could not have made or used an electronic sensor based on the disclosures in the '253 specification without significant non-routine experimentation.

Plaintiff's expert agrees that there are two steps at issue with regard to the "means for initiating" an occupant protection apparatus claim limitations. He states that one skilled in the art would understand this limitation as comprising two stages "first measuring the motion of the said mass, and [second] comparing the 'processed' signal to the threshold required for airbag actuation." (Dix Decl. at ¶ 8.) He states that one skilled in the art would understand that an illustration of electronic motion sensing (in Figure 11 of the specification) "is unnecessary since commercial considerations would determine the choice of method" and the general sensing technologies listed could be practical. (*Id.* at ¶ 9.) He further avers that one skilled in the art would understand that columns 2 and 3 of the specification discuss the required function of either an electronic or a mechanical sensor and that based on engineering texts in use in 1989, one with skill in the art would also know: (1) how to select a commercial accelerometer; (2) how to use analog circuits; (3) how to program and interface a microcomputer in processing

the signal; (4) to perform the threshold test; and (5) to trigger an airbag using the existing prior art. (*Id.* at ¶¶10-13.)

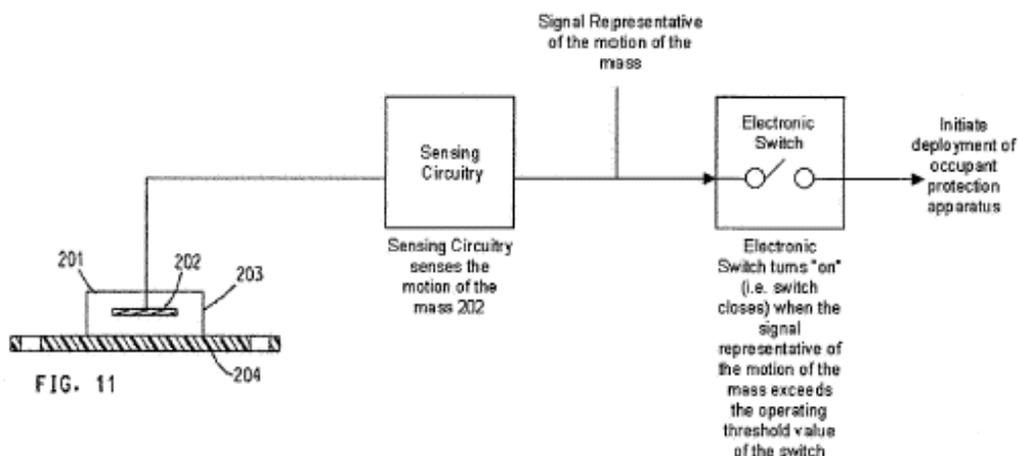
Conspicuously absent from Dix's declaration is any description of the amount of *routine* experimentation it would take to employ the existing technologies and make or use the claimed electronic acceleration-type side impact crash sensor. There is little evidence concerning the amount and type of allegedly routine experimentation presented by Plaintiff. Plaintiff takes the position and Dix opines that one having ordinary skill in the art would know how to practice the invention using existing sensing technologies but both ignore the clear position taken to support non-obviousness of the patent where the existing technologies were expressly disavowed as being capable of sensing side-impact crashes. Dix's opines that one skilled in the art could employ known sensing technologies to make and practice the invention, but neglects to provide detail regarding the scope or nature of the experimentation necessary to do so. The court finds that the evidence presented on this factor clearly favors a finding of non-enablement.

2. The Amount of Direction or Guidance Presented

This factor also favors a finding that electronic side impact sensors are not enabled. The specification provides a basic conceptual figure and brief discussion of this conceptual figure. While it generally references known sensing technology that might be used, it fails to show: (1) any output from the sensing circuitry; (2) structure or suggestions as to how the output from the circuitry could be processed to achieve the desired and required response characteristics necessary for side impact sensing; or (3) what response characteristics would be desired by the sensor's designer. Dr. Breed

acknowledged these very shortcomings in the specification. (Breed Dep. at 170-71.) Although the patent claims will not be found invalid for lack of enablement in the event the specification omits minor details, the '253 specification's omissions are not minor or trivial. Dix references the specification text at columns 2 and 3 of the '253 patent, but there this portion of the specification provides no disclosure for how to convert the mechanical version of a side impact sensor to an electronic sensor.

In addition, Plaintiff presents a schematic drawing to support its claim for enablement. This drawing, not contained in the specification, is set forth below:



This drawing shows Figure 11 in addition to the sensing circuitry and the electronic switch. This additional drawing, however, does not show how *the specification* teaches how these components should be properly designed to overcome the unique difficulties in sensing side impacts. This additional drawing merely represents another layer of a conceptual version an electronic side impact sensor. It does not alter the court's enablement conclusion.

3. The Presence or Absence of Working Examples

It is undisputed that the '253 specification does not provide any working examples of the claimed electronic switch or sensor assembly. In fact, Figure 11 and its corresponding text reflect a conceptual version of a sensor. Although less relevant, Breed also admits that neither he nor Plaintiff constructed an electronic sensor meeting the requirements set forth in the claim limitations. The lack of any working examples weighs in favor of finding that the electronic side impact sensors are not enabled.

4. State of the Prior Art & Relative Skill of Those in the Art

For purposes of this motion, the parties do not dispute that one having ordinary skill in the art includes a person having at least "a four-year degree in mechanical, electromechanical or automotive engineering, plus several years' experience in the field or the equivalent." (See Dix. Decl. at ¶ 5.) This factor does not weigh in favor of either party's position.

The state of the prior art at the time the patent application was filed, however, also weighs in favor of finding non-enablement. Plaintiff distinguished its invention from prior art using acceleration sensors for frontal crash sensor, acknowledging that the then-existing electronic frontal impact sensors would not work to detect side impacts. (See Breed Dep. at 172-73.) According to Plaintiff, the novelty of its invention was predicated on the fact that it was not possible to create side impact sensors by using existing frontal crash sensor technology without accounting for the unique characteristics associated with sensing side impacts. (See '253 patent cols. 1-2.)

5. Predictability of the Art & Breadth of the Claims

Here, the evidence supports a finding that the prior art was at least somewhat unpredictable. In an interrogatory answer, Plaintiff acknowledged that “it is unaware of any use of an electronic sensor in a side sensor application as disclosed in the ‘253 Patent.” (Def.’s Mot. Br. Ex. I at 6 (Pl.’s Answers to Defendant Nissan North America, Inc. and Calsonic Kansei Corporation’s First Set of Interrogatories).) Also, as explained above, Plaintiff distinguished its invention from the existing prior art associated with frontal crash sensors. The adaptation of acceleration type sensors for use to sense side impact crashes was allegedly novel and unobvious according to Plaintiff’s own representations. The very basis for Plaintiff’s claims of novelty tends to show the unpredictability of the art.

The claim language is very broad and, as the court has already ruled, the ‘253 specification links various corresponding structure the means for initiating claim limitations at issue in this case. The court’s construction of the broad claim language, however, does not in itself support enablement.

D. Whether the Specification Enables One of Skill in the Art to Make and Use the Full Scope of the Claimed Invention

The next important issue is whether the ‘253 specification’s lack of enablement for claims covering an electronic sensor necessarily precludes enablement of the “full scope” of the claimed invention. Defendant argues that the full scope of the claimed invention is enabled only if side impact electronic sensors are enabled. See *Chiron Corp.*, 363 F.3d 1253, 1256. Delphi argues that the court’s claim construction has made the electronic side impact sensors part of the claims (i.e. that the full scope of the claims include both mechanical and electronic side impact sensors).

Conversely, Plaintiff argues that the full scope of the claims are enabled because Defendant admits that the mechanical side impact sensors are enabled. See *Engel Indus. Inc.*, 946 F.2d at 1533 (enablement may be met so long as at least one mode is adequately taught). In other words, the claim language teaches two modes of enabling the full scope of the invention.

The case law seems to conflict in this area, but the key distinction is whether the *scope of the claims* includes both mechanical and electronic means for initiating a side impact sensor or whether these means are merely different *methods* to practice the invention. See *AK Steel Corp. v. Sollac & Ugine*, 234 F. Supp. 2d 711, 717 (S.D. Ohio 2002), *aff'd*, 344 F.3d 1234 (Fed. Cir. 2003). The *AK Steel* court confronted a similar dispute regarding the “full scope” of patent claims. It explained:

AK Steel first argues that claims 1, 3, 5, and 7 are enabled because the '549 patent discloses at least one claimed enablement—namely, it discloses a steel strip with an aluminum coating containing up to about 0.5% silicon by weight. Plaintiff relies on *Johns Hopkins University v. Cellpro Inc.*, 152 F.3d 1342 (Fed. Cir. 1998), for the proposition that “the enablement requirement is met if the description enables any *mode* of making and using the invention.” 152 F.3d at 1361 (emphasis added). This argument confuses the different methods of making a claimed product with the full range of products claimed in the patent. This distinction is borne out in *Johns Hopkins*, where the defendant asserted that the plaintiff’s patents were not enabled (a) because they did not teach how to make the full range of claimed antibodies and (b) because they did not teach how to make the claimed antibodies using all disclosed alternative methods. The Federal Circuit rejected both arguments, but on different grounds. As to the first argument, the court acknowledged that “[t]o be enabling, the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without undue experimentation.” *Id.* at 1359 (citing *Genentech, Inc. v. Novo Nordisk, A/S*, 108 F.3d 1361, 1365 (Fed. Cir. 1997)). It then reviewed the record and found that summary judgment had been appropriately granted to the plaintiff because the patent specifications did teach how to make the full range of claimed antibodies. The Federal Circuit then found the second argument to be legally irrelevant, because a

patent need not teach how to make the claimed invention using every alternate method disclosed in the patent.

Here, the '549 patent claims stainless steel strips hot-dipped in an aluminum bath containing up to about 10% silicon by weight. The aluminum coating, whether it contains 0.5% or 8.0% silicon by weight, is part of the claimed product.

Id.

“The enabling disclosure [must] be commensurate in scope with the claim under consideration.” *Chiron Corp.*, 363 F.3d at 1253. The claims at issue in this case are means-plus-function claims. 35 U.S.C. § 112, ¶6 permits the use of means-plus-function language. It provides:

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 (emphasis added).

As a “quid pro quo” for the convenience of using § 112 ¶6, the patentee accepts a duty to clearly link or associate corresponding structure to the stated function. *Harley-Davidson, Inc.*, 250 F.3d at 1376. Here, Plaintiff argued for and obtained a broad claim construction including both electronic and mechanical corresponding structure under the means-plus-function claim limitations at issue. Therefore, the *claims* have been construed by the court to include both types of corresponding structure. The scope of the claims include both mechanical and electronic means and are not simply alternative methods of practicing the full scope of the invention. During claim construction, Plaintiff vigorously advocated its position that the “means . . . for initiating an occupant protection apparatus” means-plus-function claim limitation was supported by *both* mechanical and electronic disclosures in the '253 patent. (See, e.g., Pl.’s 03/21/03

Claim Construction Memorandum at 9-10 [Dkt. # 205].) The court agreed, and construed the “means . . . for initiating” an OPA to include both mechanical and electronic means.

The enablement of only the mechanical means supporting the stated function of initiating an OPA does not enable the full-scope of the invention claimed. In *Chiron*, the Federal Circuit found that a specification was not enabling because it “fell short of providing a ‘specific and useful teaching’ of all antibodies within the scope of the claim.” *Chiron Corp.*, 363 F.3d at 1256. Similarly, because the ‘253 specification does not enable both the mechanical and the electronic means for initiating an OPA, the full scope of the claims at issue are not enabled.

IV. CONCLUSION

IT IS ORDERED that Defendants’ “Motion for Summary Judgment of Invalidity of the ‘253 Patent for Failure to Comply with the Written Description Requirement” [Dkt. # 265] is GRANTED.

Defendants’ “Motion for Summary Judgment of the Invalidity of Claims 1, 11, 20, 30 and 39 of the ‘253 Patent in View of Prior Art” [Dkt. # 266] is DENIED.

Defendant Delphi’s “Motion for Partial Summary Judgment of Invalidity . . . for Lack of Enablement” [Dkt. # 303] is GRANTED.

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

Dated: July 21, 2005

I hereby certify that a copy of the foregoing document was mailed to counsel of record on this date, July 21, 2005, by electronic and/or ordinary mail.

S/Lisa G. Teets
Case Manager and Deputy Clerk
(313) 234-5522