

# In the United States Court of Federal Claims

No. 92-580 C

(Filed Under Seal: August 26, 2009)

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**SPARTON CORPORATION,**

Plaintiff,

v.

**THE UNITED STATES,**

Defendant.

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Patents; Invalidity; Obviousness;  
Prior Art in Offer for Sale;  
Posttrial Opinion

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## OPINION

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**DAMICH, Judge**

In this patent infringement case, Plaintiff Sparton Corporation (“Sparton”) alleges that Defendant the United States (“the Government”), through the actions of the U.S. Navy, has used and/or caused the manufacture of sonar buoys that infringe U.S. Patent No. 3,921,120 (“the ‘120 patent”) and U.S. Patent No. 4,029,233 (“the ‘233 patent”), both assigned to Sparton. The case is now before the Court on the parties’ posttrial briefs. After a three-week trial held in 2008, the parties submitted supplemental briefs on the issues of infringement and the affirmative defense of invalidity for obviousness.

The Court finds the Government’s affirmative defense of invalidity to be persuasive and dispositive of this case. In addition to showing that certain patents are prior art against Sparton’s asserted patents, the Government has proven by clear and convincing evidence that an engineering change proposal, or ECP, that Sparton had submitted to the Navy, under which Sparton would test and deliver 300 prototype sonobuoys for \$198,000, qualifies as an offer for sale under 35 U.S.C. § 102(b) and, therefore, is also prior art. In light of the similarity between

the prototype design and Sparton’s claimed invention, and in light of the teachings of the other prior art, the Court finds that all claims of Sparton’s asserted patents are obvious and invalid. Sparton’s arguments (1) that its engineering change proposal is not prior art per the experimental use exception and (2) that evidence of secondary indicia of non-obviousness rebuts the Government’s prima facie case of obviousness, are poorly presented, under-developed, and unpersuasive. Thus, the Court renders judgment in favor of the Government.

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**I. BACKGROUND**

On March 5, 1969, the Naval Air Systems Command (“NAVAIR”) awarded Sparton Contract No. N00019-69-C-0465 (“the -0465 contract”) for the production of AN/SSQ-53 model sonobuoys, also known as DIFAR sonobuoys.<sup>1</sup> DX-1.13; Jt. Stip. ¶¶ 22, 23. A sonobuoy is a device that uses sonar waves to detect underwater objects such as submarines. Jt. Stip. ¶ 2. The AN/SSQ-53 model sonobuoy was cylindrical in shape and could be dropped from a military aircraft such that it would fall vertically and strike the ocean surface at its bottom end. Jt. Stip. ¶ 25; DX-219. The impact of the buoy striking the water caused a release plate mechanism to be released from the bottom end of the sonobuoy so that the internal components of the sonobuoy could exit out the bottom of the sonobuoy housing. Jt. Stip. ¶ 25. Once freed from the housing, a component known as the hydrophone would then deploy to a depth of about ninety feet, while a floating antenna mechanism remained at the ocean surface. Tr. (Boyle) at 677:12-15; JX-142.19-.20. The hydrophone detected sonar signals indicative of enemy submarines, which were relayed via the antenna to the Navy. JX-142.19-.20.

The -0465 contract was a multi-year fixed price supply contract under which Sparton was to produce AN/SSQ-53 sonobuoys according to the existing Navy-approved design specifications. *Id.*; DX-1.28. Two other Navy contractors, Magnavox Corporation (“Magnavox”) and Sanders Associates, Inc. (“Sanders”), originally had developed the AN/SSQ-53 design and already had been supplying AN/SSQ-53 model sonobuoys for at least a year. Jt. Stip. ¶¶ 20, 21.

**A. Sparton’s Deep DIFAR Program**

After award of the -0465 contract, Sparton employees became aware that the Navy was interested in having a “dual depth” selection capability in the AN/SSQ-53 hydrophone. In other words, the Navy wanted its fleet to be able to adjust settings on an SSQ-53 to cause it to deploy to either a deeper depth (about 1000 feet) or the standard shallower depth (about 90 feet). Tr. (Boyle) at 3495-98; DX-126.92-.94. Therefore, sometime prior to September 1970, Sparton began an in-house development program known as “Deep DIFAR” with the goal of eventually selling DIFAR sonobuoys to the Navy that could achieve operating depths deeper than the usual ninety feet. Tr. (Boyle) at 3495-98; DX-23.2; JX-32. The Deep DIFAR program was given the Sparton job number 7400, indicating that it was internally regarded as an “R & D” or “design” job, rather than a manufacturing job. DX-23.2; JX-32; Tr. (Melvin) at 1397-98, 1401-02.

The initial design phase for the Deep DIFAR program proceeded from September 1970 through approximately April 1971. PX-155.11-.12. The design Sparton produced deployed the

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<sup>1</sup> DIFAR stands for Directional Frequency Analysis and Recording. A DIFAR sonobuoy used a directional hydrophone, whereas other previous sonobuoys had used omnidirectional hydrophones.

internal components out the top of the sonobuoy housing, rather than out the bottom of the housing, as was done in the existing AN/SSQ-53 design. DX-23.2; PX-155.7-.9. This deployment was referred to as an “out-the-top” or “upside-down” scheme. In accomplishing this type of deployment, Sparton used a multi-piece release plate mechanism known as a “spider-plate,” designed by Mr. James Widenhofer, an engineer at Sparton and the named inventor on the asserted patents. DX-17.7-.11; Tr. (Boyle) at 662-63. This particular sonobuoy component—the release plate—occupies an important place in the Court’s Opinion. A drawing of a spider-plate is shown below:



DX-232.42. The spider-plate, which differs from the release plate mechanism disclosed and claimed in Sparton’s patents, had originally been used as a water-impact release mechanism in an older sonobuoy model, the AN/SSQ-50. Tr. (Boyle) at 654-57. However, in the Deep DIFAR design, the spider plate was actuated by the force resulting from inflation of the sonobuoy’s surface float, instead of the force caused by the sonobuoy’s impact with the ocean. *Id.* In the Deep DIFAR design, the surface float, contained inside the sonobuoy housing, began inflating once the sonobuoy was submerged in water. The force from the inflating float would press upward on the spider plate, causing a central ring portion of the plate to be bent upward, drawing with it a set of fingers, until the fingers became disengaged from the housing and released the plate. *Id.*; DX-141; DX-232.42.

Some preliminary air drop tests of the Deep DIFAR design were conducted in December 1970 and February 1971 off the coast of Key West, FL, with the assistance of Navy aircraft and personnel. JX-19; JX-21. The December 1970 tests were intended to evaluate the “out-the-top” deployment scheme, so the sonobuoys that were tested were “dummies,” i.e., mechanically operational only. JX-17; JX-19. Sparton employees who facilitated the tests reported that the tested units performed as intended, though some complications unrelated to the release mechanism occurred on a few of the units. JX-19. The February 1971 tests were conducted using six sonobuoys that were fully operational, both mechanically and electrically. JX-21. In a report discussing the results of the February 1971 tests, Mr. Widenhofer noted that:

In spite of the fact that several new principles and new designs were being tested, the only serious problem encountered was a correctable malfunction of the cable spool on several units. The sonobuoys not troubled by this malfunction, performed entirely as intended providing electronic data as good as, if not superior to, standard DIFAR.

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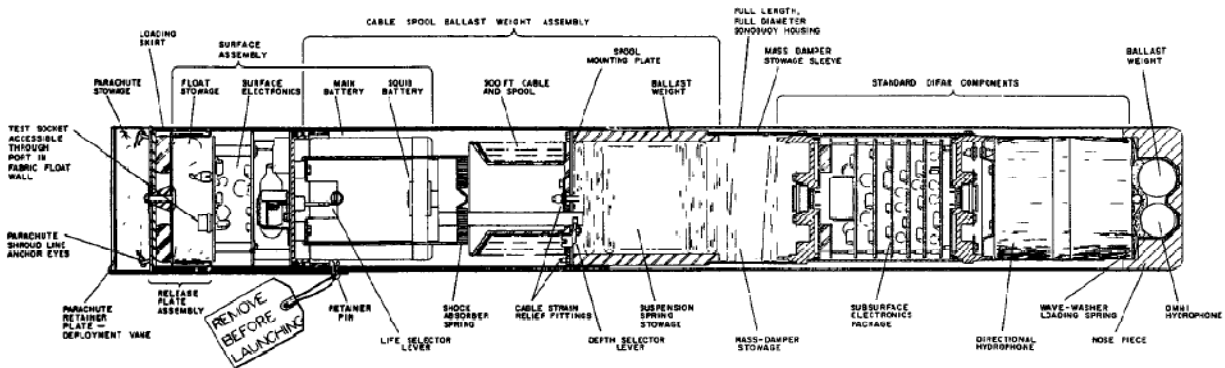
The principles involved in the operation of the inverse sonobuoy design with a float pressure actuated release mechanism, or the so call[ed] “upside down”

design, have been proven workable and, within the limited scope of the testing accomplished to date, reliable.

JX-21.2. After these tests, twenty complete Deep DIFAR engineering models were built, with the intention that they would be used for further drop testing.<sup>2</sup> JX-32; PX-155.11-.12; Tr. (Boyle) at 401-06. The engineering models were not tested in March 1971 as originally planned, however, as Sparton had decided to postpone further testing and save the models pending a Navy contract for the design of a “dual depth” sonobuoy. PX-155.15-.16; JX-30.1. A “Final Report” was prepared for the Deep DIFAR program on June 21, 1971, and the program was considered complete. JX-32.1-2 (“The Deep DIFAR program has been completed. The final engineering lot of twenty sonobuoys is ready for evaluation.”).

## B. Sparton’s ECP and Mod. 4 of the -0465 Contract

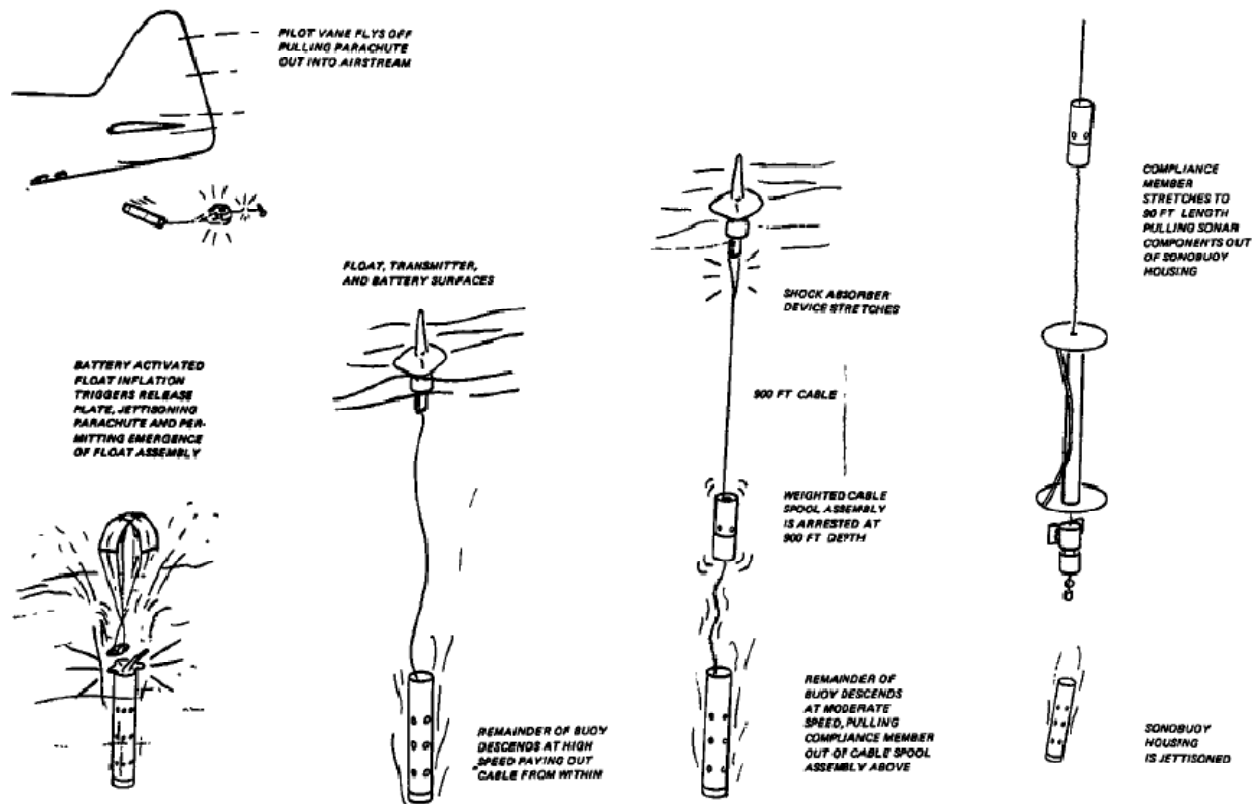
By letter dated March 17, 1971, Sparton submitted a document titled “Engineering Change Proposal for the Dual Depth DIFAR Sonobuoy ECP #0465-2” (“the ECP”). JX-11.1; JX-12.1; DX-130.1; Tr. (Boyle) at 409-411. The ECP was drafted by Mr. Donald DePew, a Sparton engineer. A cross-sectional layout view of the ECP sonobuoy design is reproduced below:



DX-130.7. The ECP described a proposed deployment sequence for a “dual depth” DIFAR sonobuoy in which the components of the sonobuoy would deploy out the top end of the sonobuoy casing, as was done in the Deep DIFAR design. *Id.* at .8-.12. In particular, the ECP described a release plate assembly that would be actuated, or “released” from the sonobuoy casing, by a force applied from an expanding float. *Id.* The release plate assembly, referred to by the parties as the “DePew device,” was a multi-piece device that used spring-loaded, movable tabs to engage the housing. Upon inflation of the float, the tabs would be disengaged from the housing, and the release plate would then eject out the top of the sonobuoy casing, permitting the float and antenna to rise to the surface, while the remainder of the components sank with the

<sup>2</sup> The perceived need for additional testing seems to have been due, at least in large part, to Sparton’s concerns over a problem involving occasional breakage or severing of the cable connecting the hydrophone to the surface float on some test units. *See* JX-23; JX-26; JX-29. The problem was corrected by April 1971, after Sparton conducted some laboratory tests to identify the cause of the problem. *See* JX-23; JX-26; JX-29.

sonobuoy casing to the desired depth (either 90 or 1000 feet). *Id.*; Tr. (Boyle) at 410-11. Figure 2 of the ECP, illustrating the deployment sequence, is shown:<sup>3</sup>



DX-130.9. Due to this deployment sequence, the proposed dual depth DIFAR design was estimated to have an eighty-two second descent time from water impact to full deployment. *Id.* at .12. The ECP also proposed a “Statement of Work,” in which efforts would be divided into two phases. *Id.* at .15. Phase I would include the design and construction of engineering models and sea tests on those models.<sup>3</sup> Phase II would include the modification and delivery of “one production lot of 300 GFE AN/SSQ-53 Sonobuoys for dual depth operation.” *Id.*

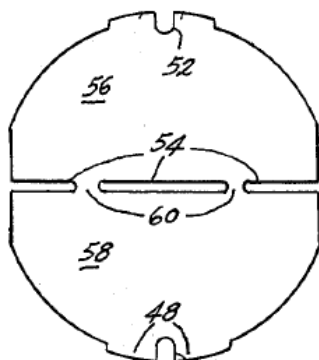
The Navy accepted Sparton’s ECP on July 13, 1971, when it executed Modification P00004 (“Mod. 4”) to the -0465 contract. *Jt. Stip.* ¶ 43; DX-1.9. Under the heading “Description of Amendment/Modification,” Mod. 4 instructed Sparton to “[i]ncorporate into the 335 units of the subject sonobuoys the selectable depths of 90 feet or 1000 feet as delineated in Engineering Change Proposal No. 0465-2 . . . .” DX-1.9. A timetable of 7 ½ months, i.e., until the end of February 1972, was set for the completion of all work under both phases of the ECP work. Internally, Sparton regarded this as a rather short schedule but considered it achievable “based upon the completion of the Deep DIFAR sonobuoy design work.” JX-35.1. In other

<sup>3</sup> Figure 2 of the ECP is substantially the same as what is shown in Figures 1, 2, and 3 of the ‘120 and ‘233 patents.

<sup>3</sup> Phase I would require the use of thirty-five pre-existing AN/SSQ-53 sonobuoys, presumably for their parts, referred to as Government Furnished Equipment (“GFE”). DX-130.15.

words, Sparton's plan was to simply modify its Deep DIFAR design to allow for the new dual depth capability. JX-31.1 (pre-ECP Sparton internal memorandum listing the mechanical design changes Sparton would make to the Deep DIFAR design "to meet the requirements of the Dual Depth feature").

Between approximately July 20, 1971 and March 29, 1972, Sparton designed and tested its dual depth DIFAR sonobuoy according to Phase I of the ECP. JX-32.1; JX-66. This included air drop tests in August 1971 near St. Croix, V.I., using ten of the twenty engineering models of the Deep DIFAR design "to gain further confidence in the [existing] design" and to "check out design revisions." JX-34; JX-43. After the August 1971 testing, Sparton updated the Deep DIFAR design to allow for selectable dual depths and made other improvements such as designing a better performing antenna and surface float and substituting a smaller hydrophone. JX-36; JX-38; JX-53. It was also during this work under Phase I of the ECP that Mr. Widenhofer designed and implemented the single-piece deformable release plate disclosed and claimed in the '120 and '233 patents to replace the spider plate that had previously been used in the Deep DIFAR design. See DX-95.80-.94. A depiction of Mr. Widenhofer's single-piece plate, taken from the specification of Sparton's patents, is shown below:



JX-1.3; JX-3.1, .3. This release plate consisted of a single piece of sheet metal, as opposed to the multi-piece DePew and spider plate designs, and was slotted along a diameter such that inflation of the float would cause the plate to bend or buckle along that line, disengaging the tabs from the sonobuoy housing. On November 5, 1971, a second drop test was conducted of four dual depth sonobuoys "[t]o evaluate the performance of the proposed dual depth DIFAR sonobuoy package with particular reference to [Mr. Widenhofer's] new single part float pressure activated release plate design." JX-53.1. In a report summarizing the test, Mr. Widenhofer described the release plate mechanism as being generally acceptable without further modification. *Id.* Thus, although Sparton's ECP indicated its dual depth DIFAR sonobuoy would use the multi-piece DePew plate, Sparton never actually built a sonobuoy that used the DePew plate. Tr. (Boyle) at 412, 3462, 3523. Sparton's design evolved from using the spider plate of the Deep DIFAR sonobuoys directly to using Mr. Widenhofer's single piece deformable plate. Internally, Sparton identified these design and testing efforts under the same job number, 7400, as it had used for the Deep DIFAR program. *Id.* at 408-09.

Mr. Widenhofer wrote a Final Report for the Dual Depth DIFAR sonobuoy design on April 28, 1972, in which he documented the design and testing efforts by Sparton under Phase I of the ECP and described the final design that was ultimately released for production of the 300

sonobuoys called for in Phase II of the ECP. JX-66; Jt. Stip. ¶ 47. The Final Report describes and illustrates a deployment sequence quite similar to the deployment sequence described and illustrated in the ECP and in the Final Report drafted for the Deep DIFAR program. Compare JX-66 with DX-130 and JX-32. The release plate used in the final design, however, was Mr. Widenhofer's single-piece deformable plate, not the multi-piece DePew plate of the ECP or the spider plate of the Deep DIFAR program. JX-66. Deliveries to the Navy of the 300 sonobuoys required by Phase II of the ECP occurred between April 25, 1972 and June 13, 1972. JX-66.23; JX-76.1; JX-77.1; JX-78.1; DX-121.42-44, .62-.67. These sonobuoys were equipped with Mr. Widenhofer's single-piece deformable release plate, as shown in Mr. Widenhofer's Phase I Final Report. Tr. (Boyle) at 387-92; DX-219; JX-77. Thus, sometime on or after June 13, 1972, the work called for under Mod. 4 of the -0465 contract was completed.

### C. Administrative and Court Proceedings Concerning Sparton's Patents

Sparton filed a patent application on March 29, 1973,<sup>4</sup> which resulted in the issuance of the '120 patent on November 18, 1975 and the '233 patent on June 14, 1977. JX-1.1; JX-3.1. The '120 and '233 patents have an identical specification that describes a preferred embodiment substantially similar to the design described in Mr. Widenhofer's ECP Phase I Final Report. JX-1; JX-3; JX-66. The difference between the two patents lies in the scope of their claims: the claims of the '120 patent are directed to a sonobuoy as a whole while the claims of the '233 patent are limited to a sonobuoy release plate. The patents do not mention or depict Mr. DePew's ECP release plate design or the spider plate of the Deep DIFAR program.

In 1981, Sparton sent a letter to the Navy captioned "Administrative Claim for Patent Infringement," in which Sparton accused the Navy of procuring sonobuoys that infringed the '120 and '233 patents from several other contractors. JX-80. Sparton's efforts at resolving the dispute over the alleged infringement continued into 1992 without resolution. DX-95. Sparton then filed the present suit in 1992.

In 2003, this Court issued an opinion finding the asserted claims of the '120 and '233 patents to be invalid under 35 U.S.C. § 102(b) as being anticipated by Sparton's ECP. *Sparton Corp. v. United States (Sparton I)*, 57 Fed. Cl. 455 (2003). The U.S. Court of Appeals for the Federal Circuit reversed and remanded the case. *Sparton Corp. v. United States (Sparton II)*, 399 F.3d 1321 (Fed. Cir. 2005). This Court then issued an opinion construing the claims of the '120 and '233 patents in 2005. *Sparton Corp. v. United States (Sparton III)*, 68 Fed. Cl. 34 (2005). A three-week trial was held beginning on April 21, 2008, during which Sparton presented five witnesses. Four of Sparton's witnesses were current or former Sparton employees, including Sparton's technical expert, Mr. Charles Boyle; their testimony was a blend of opinion and personal knowledge. The Government presented two witnesses, a technical expert, Mr. Alan Hudson, and a financial expert. After trial, the Court ordered the parties to

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<sup>4</sup> This filing date makes March 29, 1972 the "critical date" for assessment of whether subject matter is prior art under 35 U.S.C. § 102(b). As the Court will discuss below, subject matter that qualifies as prior art under § 102(b) can be considered in an obviousness determination under § 103. In an earlier sealed version of this Opinion, "March 29" had been misprinted "March 9".



submit supplemental posttrial briefs on the issues of invalidity for obviousness and infringement.<sup>5</sup>

## II. INVALIDITY

The Government argues that all claims of Sparton’s ‘120 and ‘233 patents recite obvious variations on the prior art and, therefore, are invalid under § 103. Def.’s Posttrial Br. 8-33, Jan. 9, 2009. In light of the content of the prior art, including particularly Sparton’s offer to sell its dual depth sonobuoy design under the ECP and the design trends and general Navy requirements for sonobuoys in the early 1970s, the Government reasons that one skilled in the art would find the claimed inventions to represent a combination of merely obvious design choices. *Id.* Sparton counters that the prior art does not contain all limitations recited in the claims and that evidence of certain secondary indicia further establish the non-obviousness of the claims. Pl.’s Posttrial Br. 19, 26-29, Feb. 9, 2009.

Upon issuance, a patent is presumed to be valid. 35 U.S.C. § 282. Thus, when invalidity is raised as an affirmative defense in an infringement suit, the accused infringer bears the burden of proving facts which support a conclusion of invalidity by clear and convincing evidence. *Takeda Chemical Indus., Ltd. v. Alphapharm Pty., Ltd.*, 492 F.3d 1350, 1355 (Fed. Cir. 2007). Section 103 of the Patent Act states that a patent is invalid “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). Whether the facts proved by the accused infringer establish that the claims of the patent are obvious is a question of law. *Alza Corp. v. Mylan Labs., Inc.*, 464 F.3d 1286, 1289 (Fed. Cir. 2006).

In making an obviousness determination, the Supreme Court has instructed that courts are to conduct an inquiry into four factors: (1) the level of ordinary skill in the pertinent art, (2) the scope and content of the prior art, (3) the differences between the prior art and the claims at issue, and (4) whether any secondary “objective indicia” of non-obviousness, such as commercial success, long felt but unsolved needs, failure of others, etc., shed light on the nature and origin of the claimed subject matter. *KSR Int’l v. Teleflex, Inc.*, 550 U.S. 398, 406 (2007) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966)). These factors are commonly referred to as the “*Graham* factors.” Below, this Court will analyze the evidence and arguments presented by the parties respecting each of these factors.

### A. The Level of Skill in the Art

Applying the first *Graham* factor to this case, the Court must define the level of ordinary skill in the sonobuoy art at the time the invention was made. After considering both parties’

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<sup>5</sup> The Court also ordered the parties to submit posttrial briefing to address the Government’s defense that it was entitled to a license under the ‘120 and ‘233 patents according to a patent rights clause which must be read into the -0465 contract by operation of law. Because the Government’s invalidity defense is persuasive and dispositive, the Court declines to address infringement or the license issue in this Opinion.

assertions, the Court finds that a person of ordinary skill in the sonobuoy art at the time of the invention would have had a mechanical or electrical engineering degree and some experience in sonobuoy design. This conclusion nearly mirrors the level of skill urged by the Government: a bachelor's degree in mechanical engineering and some experience with sonobuoy design. Sparton asserts that a "person of ordinary skill in [the sonobuoy art] in the 1970-1971 time period would possess either a bachelor's degree in engineering or some experience with sonobuoy design or development." Pl.'s Posttrial Br. 18, Feb. 9, 2009. However, Sparton fails to support its assertion with any reasoned explanation or citation to evidence. Consequently, the Court would be justified in adopting the Government's asserted level of skill entirely. *See Scanner Techs. Corp. v. ICOS Vision Sys. Corp. N.V.*, 528 F.3d 1365, 1380 (Fed. Cir. 2008) (rejecting patentee's arguments regarding level of ordinary skill when record showed that patentee had "point[ed] to no contrary evidence [below], and its brief [did] not even dispute the level of ordinary skill that [accused infringer's expert] described"). Nonetheless, despite the lack of any substantial argument from Sparton, the Court has decided that one ordinarily skilled in the art would have had, in addition to some experience in sonobuoy design, a degree in either mechanical engineering—as the Government asserts—or in electrical engineering.

One way for a court to ascertain the ordinary level of skill in the art is to inquire about the qualifications of those engaged in the field at the time of the invention. *See I.U. Tech. Corp. v. Research-Cottrell, Inc.*, 641 F.2d 298, 306 (5th Cir. 1981). "What were their educational backgrounds? How much and what sort of experience had they in the field?" *Id.* In this case, the Court received testimony from several individuals who were engaged in the field at or about the time of the invention. All possessed, in addition to some experience in sonobuoy design, a degree in either mechanical or electrical engineering. For example, the Sparton employee who was responsible for the ECP design, Mr. DePew, had earned a mechanical engineering degree and had experience in sonobuoy design. DX-95.101. Witnesses who had been involved in sonobuoy design at or about the time of the invention and were deposed in this case concerning accused devices manufactured by various other companies held degrees in either mechanical engineering or electrical engineering. PX-250.1-.2 (electrical); PX-252.2-.3 (electrical); PX-254.2-.3 (mechanical); PX-255.3 (mechanical); PX-256.8-.11 (mechanical); PX-257.2-.3 (electrical). The Government's expert, Mr. Hudson, earned a degree in mechanical engineering. DX-220.1. Sparton's expert, Mr. Boyle, earned a degree in electrical engineering. PX-155.1. Both had been working in sonobuoy design at the time of the invention. DX-220.1; PX-155.1. Therefore, the Court finds that the degree held by one ordinarily skilled in the art might have been in either mechanical or electrical engineering.

In addition to an appropriate degree, the Government notes that the experience of one skilled in the art of sonobuoy design would have included exposure to and knowledge of other sonobuoy programs and Navy performance specifications (including classified information), as it was the practice of the Navy at that time to brief its sonobuoy contractors on its needs as well as to permit the contractors access to models of other contractors' production sonobuoys.<sup>6</sup> *See* Tr.

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<sup>6</sup> It is important to bear in mind, however, that merely noting in the general sense that sonobuoy engineers often had access to production models of other sonobuoy manufacturers is *not a substitute* for establishing, by clear and convincing evidence, that any particular models are actually prior art. Instead, the Court will regard the Government's statement here as being

(Boyle) at 397-99, 593, 600, 647-48, 703-09, 3496-97, 3747-49; PX-168.17; JX-138 (Hermes employee stating that “[d]uring the 1960’s and as late as 1977-78 it was the practice of the [U.S. Navy] to supply each sonobuoy contractor with the competitors[’] buoys.”); DX-158; DX-220.3-.4. Thus, the Court concludes that one of ordinary skill in the art at the time the invention was made would have had experience in sonobuoy design (including exposure to and knowledge of the Navy’s general needs) and a degree in either mechanical or electrical engineering.

## **B. The Scope and Content of the Prior Art**

In reaching a conclusion as to whether patent claims are invalid under § 103, a court must determine whether the claimed invention would have been obvious to one of ordinary skill in light of the prior art. To make this determination, a court must not only define the level of ordinary skill in the art but must also define what can be considered prior art. *KSR*, 550 U.S. at 406. Whether particular subject matter can be considered prior art for the purpose of making an obviousness determination under § 103 is defined by the various subparts of § 102. *Riverwood Int’l Corp. v. R. A. Jones & Co.*, 324 F.3d 1346, 1354 (Fed. Cir. 2003) (“The term ‘prior art’ as used in section 103 refers at least to the statutory material named in 35 U.S.C. § 102.”). Section § 102 states, *inter alia*, that subject matter is prior art if it was in public use, on sale, described in a prior patent, or described in a printed publication more than one year before the filing date of the application describing the claimed invention in question.<sup>7</sup> 35 U.S.C. § 102. Though § 102 describes prior art in terms of anticipation, even if subject matter that qualifies as prior art under § 102 does not, on its own, anticipate a claimed invention, the subject matter is still prior art that can be considered in obviousness determinations under § 103. *TorPharm, Inc. v. Ranbaxy Pharms., Inc.*, 336 F.3d 1322, 1327 (Fed. Cir. 2003); *Baker Oil Tools, Inc. v. Geo Vann, Inc.*, 828 F.2d 1558, 1563 (Fed. Cir. 1987) (“If a device was in public use or on sale before the critical date, then that device becomes a reference under section 103 against the claimed invention.”); *accord Rothman v. Target Corp.*, 556 F.3d 1310, 1318 (Fed. Cir. 2009) (hypothetical person of ordinary skill in the field is attributed with knowledge of all relevant prior art).

One of the primary areas of dispute between the parties concerns what the Government has actually established as prior art under 35 U.S.C. § 102.<sup>8</sup> The parent application of the ‘120

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relevant only in the sense that it tends to demonstrate that an individual of ordinary skill in the sonobuoy art at the time would have been aware of the Navy’s needs and performance requirements, as well as the general trends in sonobuoy design. For example, an experienced sonobuoy engineer in the relevant time period would have been aware of the handling and launch conditions a sonobuoy would be subjected to, that the center of gravity of sonobuoys had to be lower than a certain point along the length of the casing, that it was desirable to get the sonobuoy’s hydrophone to operating depth as quickly as possible, and that sonobuoys had to be packaged in standard size casings. *See* Tr. (Boyle) at 416-17, 420; PX-249.6; DX-220.3-.5.

<sup>7</sup> Courts customarily refer to the date that is one year prior to the filing date of the application describing the invention in question as the “critical date” for § 102 analysis.

<sup>8</sup> Sparton’s counsel, Mr. Kreiss, objected during trial to questions posed concerning some alleged prior art references on the basis that they are “non-analogous art” but was overruled and

and ‘233 patents was filed on March 29, 1973, making March 29, 1972 the § 102 critical date for both patents. The parties do not dispute that certain U.S. Patents, namely, those granted to Tatnall, Halberg, Bannister, Adler, Wojciechowski, Dinolfo, and Cotilla are prior art under § 102(b) and/or (e),<sup>9</sup> but in their posttrial briefs they strongly dispute the status as prior art of certain public uses, a printed publication, and certain offers for sale. Below, the Court will examine the parties’ arguments concerning the status as prior art of (1) the alleged “public use” resulting from Sparton’s Deep DIFAR testing, (2) a printed publication drafted by Sparton, referred to as the “Project Beartrap Sensor Study,”<sup>10</sup> (3) an alleged offer for sale known as the “Active Mediterranean Proposal,” and (4) the offer for sale communicated via Sparton’s ECP.<sup>11</sup>

### **1. Sparton’s Deep DIFAR Testing**

The Government argues that Sparton’s air drop testing of its Deep DIFAR design in February and August of 1971 constituted a prior art “public use” of the Deep DIFAR design under § 102(b), and, therefore, the Deep DIFAR design may be considered in the Court’s § 103 obviousness determination.<sup>12</sup> Establishing that a public use is prior art under § 102(b) requires a showing, by clear & convincing evidence, that the use was “in this country.” 35 U.S.C. § 102(b); *Adenta GmbH v. OrthoArm, Inc.*, 501 F.3d 1364, 1371 (Fed. Cir. 2007) (all facts supporting a finding of invalidity must be proven by clear and convincing evidence); *E. I. du Pont de Nemours & Co. v. Berkley & Co.*, 620 F.2d 1247, 1265 (8th Cir. 1980) (“prior use in a foreign country is not prior art for the purpose of determining obviousness under section 103 . . .”).

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instructed that a substantive legal argument is not ordinarily properly presented as an objection to a witness examination. Tr. (Hudson) at 2305-06. The issue was not raised again in posttrial briefing.

<sup>9</sup> The patents to Tatnall and Halberg show variations on sonobuoys that deployed floats out the top of the housing; the patents to Bannister and Adler disclose the use of inflating floats deployed out the top of various non-sonobuoy canisters; the patent to Cotilla shows a “coupling” device similar to a release plate; and the patents to Wojciechowski and Dinolfo, the most relevant of the group, disclose sonobuoy release plates of the water-impact design. JX-148; JX-149; JX-155; JX-158; DX-224; DX-229; DX-231.

<sup>10</sup> The Government also argues that the Beartrap sonobuoy was a public use.

<sup>11</sup> In its pretrial brief, the Government argued that the prior art includes a printed publication by The Magnavox Company titled “AN/SSQ-39 Final Report.” However, the Government did not produce a witness at trial whose testimony could have allowed the Court to consider the report as prior art. Nor does the Government argue in its posttrial briefing that this report qualifies as prior art.

<sup>12</sup>As discussed above in the Background section, the Deep DIFAR units tested by Sparton in February and August of 1971 utilized a float-actuated spider plate release mechanism.

None of the witnesses at trial had personal knowledge of the Deep DIFAR tests. Thus, the Government relies entirely upon Sparton's internal records to establish the tests as prior art. Sparton's February 18, 1971 report of its Deep DIFAR testing near Key West, FL, states that the drops were made approximately thirty miles from port. JX-21. It is not clear to the Court that this means the test must necessarily have occurred in United States territory. As Sparton is quick to point out, merely knowing the tests occurred thirty miles from Key West is certainly not clear and convincing evidence that the tests were a public use of the Deep DIFAR design *in this country*. None of the reports concerning the drops at St. Croix, in the Virgin Islands, in August 1971 indicate where they took place or how far from port. JX-42; JX-43.

The Government did not argue that bringing the test units to Key West and St. Croix or loading the units onto Navy aircraft constituted public uses. And, as Sparton's reports are the only evidence identified concerning the tests, it is unclear precisely what happened in terms of transporting and loading the Deep DIFAR units, so it would be difficult to discern whether such events were even "public." Given the lack of specific evidence concerning the Deep DIFAR tests, the Court cannot find that they constitute prior art under § 102(b). Thus, the Court will not take Sparton's Deep DIFAR tests into account as prior art in its § 103 obviousness determination.

## **2. The Beartrap Sensor Study Report**

The Government identifies a Defense Technical Information Center ("DTIC") document, the Beartrap Sensor Study, as being prior art under § 102(b). Def.'s Posttrial Br. 19-21, Jan. 9, 2009. The Beartrap Sensor Study was drafted by Sparton as a final report required to be submitted to the Navy as a provision of Contract No. N00019-70-C-0133 ("the -0133 contract"), a research and development contract. DX-240.8; DX-239.1; Tr. (Boyle) at 641-48. The report describes Sparton's design for a sonobuoy that would deploy in the upside-down manner, using a float-actuated release mechanism, to a "3000-foot operating depth." DX-239.6. The report does not specifically show or describe the composition or operation of the release mechanism, though, as Mr. Boyle admitted, the report would indicate to one skilled in the art that the release mechanism had to be located between the float and the upper end of the casing. Tr. (Boyle) at 646, 649-50.

The Government first implies that the Beartrap Sensor study is prior art because it was a "printed publication," noting that it was sent by Sparton to the DTIC. Def.'s Posttrial Br. 20, Jan. 9, 2009. On its face, the Beartrap Sensor Study bears what appears to be a DTIC document or accession number and a stamp indicating that the DTIC received the report on January 5, 1971. DX-239.1. However, there is no record in evidence showing that the Beartrap Sensor Study was actually published in the DTIC's Technical Abstract Bulletin ("TAB") or that it was ever requested or provided to any DTIC customers.

Another judge of this court, Judge Roger Andewelt, was presented with a similar situation. In *De Graffenried v. United States*, 20 Cl. Ct. 458 (1990), the accused infringer attempted to rely upon a DTIC document as prior art in an obviousness defense. There, the court noted the DTIC's cataloguing and TAB publishing procedures. Yet the evidence in that case did not "indicat[e] that any entity, much less those entities technologically knowledgeable and

interested, ever requested or received from DTIC either an actual copy of the [document] or any information (such as a TAB) indicating that the report existed.” *Id.* at 471. Based on the explanation provided by the parties, the court found that the only way an individual could have obtained the document, given DTIC procedures in the 1960s, would have been to request that a DTIC employee perform a manual search to find out if there were any documents relating to a specific topic. *Id.* Thus, citing *In re Hall*, the court in *De Graffenried* held that the document had not been shown to have been publicly accessible. *Id.*

This Court agrees with the analysis in *De Graffenried*. Even though the Beartrap Sensor Study was given a document number by DTIC, the Government has not shown that the Study was described in some public index (such as the TAB). Thus, even though the report has what appears to be a DTIC document number handwritten on its cover page and a DTIC stamp acknowledging the date it was received by the DTIC, the Court cannot find that the Study was sufficiently publicly accessible to be a § 102(b) printed publication. *See Kyocera*, 545 F.3d at 1350.

The Government also argues that “[t]he Beartrap sonobuoy was also a public use, since it was manufactured and used in the course of the -0133 contract.” Def.’s Posttrial Br. 21, Jan. 9, 2009. To support this assertion, the Government cites the Beartrap Sensor Study itself, which states that the “mechanical feasibility of building the Beartrap sonobuoy to meet operational requirements has been demonstrated by development of the proprietary design for a Sparton Sound Reference Sonobuoy.” DX-239.6. First, the sentence does not necessarily indicate that a demonstration or “use” of the Beartrap design was actually performed. It states merely that Sparton demonstrated the *feasibility of building* a sonobuoy according to the Beartrap design. More importantly, even if the report is taken to mean that the design was put to use, there is no indication that the use was “public” or that it occurred “in this country,” per the requirements of § 102(b). As illustrated by the testing of the Deep DIFAR design, discussed above, sonobuoy tests were at times conducted at considerable distances from the U.S. coastline. The Court cannot simply infer that the Beartrap design was in public use prior to the critical date. As such, the Court does not find that the Beartrap Sensor Study or a sonobuoy made according to the Beartrap design constitutes prior art under § 102(b) and will not consider the Beartrap design in its obviousness analysis.

### **3. Sparton’s Active Mediterranean Proposal**

The Government asserts that a proposal drafted by Sparton in February 1971 is prior art under § 102(b) because it constituted an offer for sale prior to the patents’ critical date.<sup>13</sup> If the proposal does qualify as prior art under § 102(b), it could be considered by the Court in the § 103 obviousness inquiry, as discussed above. *See TorPharm*, 336 F.3d at 1327. In *Pfaff v. Wells Electronics*, the Supreme Court set forth a two-part test to determine whether an offer for sale is prior art under § 102(b): (1) the subject matter in question must have been the subject of a “commercial” offer for sale, and (2) the subject matter must have been “ready for patenting” at the time. *Pfaff v. Wells Elecs.*, 525 U.S. 55, 67 (1998). To establish the first *Pfaff* prong, the

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<sup>13</sup> Though the proposal was contemporaneous with Sparton’s early Deep DIFAR efforts, the proposal does not appear to be related to Job 7400 or Sparton’s ECP.

alleged infringer must prove by clear and convincing evidence that there was a definite offer to sell that could be accepted by the offeree to form a contract, according to traditional contract principles. *Group One, Ltd. v. Hallmark Cards, Inc.*, 254 F.3d 1041, 1046-47 (Fed. Cir. 2001).

The proposal, referred to by the Government as the “Active Mediterranean Proposal,” was a document prepared by Sparton without solicitation from the Navy. It proposed that Sparton would provide twenty-five or fifty SSQ-53 sonobuoys that deployed in an upside-down scheme to operate at a 3000 foot depth “to facilitate Naval evaluation of the active DIFAR multistatic system during the Mediterranean sea tests that [were] planned for August 1971.” DX-242.1, .8-.9; Tr. (Boyle) at 674-677. The document includes several drawings and some technical description of the proposed designs.

However, as Sparton points out, the Government failed to prove by clear and convincing evidence that the Active Mediterranean Proposal was ever actually communicated to the Navy, so as to make it an “offer” capable of acceptance under traditional contract principles, as required by the first *Pfaff* prong. See Richard A. Lord, *Williston on Contracts* § 4:16 (4th ed. 2008) (“As a general principle, an offeree cannot actually assent to an offer unless the offeree knows of its existence.”); *Miller v. United States*, 62 F. Supp. 327, 334 (Ct. Cl. 1945) (holding that “[a]n offer is not made until it is communicated to the offeree”). The only evidence the Government proffered in regard to whether the Active Mediterranean Proposal was actually communicated to the Navy is a generalization made by Sparton’s expert, Mr. Boyle, during his cross-examination. First, Mr. Boyle, a former Sparton employee, was asked about Sparton’s practices in general in regard to dating documents such as proposals:

Q How did Sparton Corporation date its documents such as proposals?

.....

A The date would have been the date the document was produced.

Q How would that relate to the date that it was submitted to the government?

A Well, it depends how the engineering department was performing in accordance with the time the article or the proposal was being submitted.

Sometimes we were running a little ahead of time. Sometimes we were right up to the wire. So it could be coincident or it could be sometime before.

Q Would it be a matter of days before it was submitted?

A Probably. Most likely.

Q It would not be a matter of months before?

A No.

Tr. (Boyle) at 622-23. Then, after approximately four more hours of cross-examination on other topics, the Government's counsel circled back to this issue, asking Mr. Boyle, specifically in regard to the Active Mediterranean Proposal:

Q Now, . . . there's a date of 1 February 1971 [on the proposal].

A Yes.

Q And again, as we have discussed previously, that date would approximate when the document would have been submitted to the government?

A Then or sometime after, yes.

Q And that sometime after would be relatively short after, correct?

A I would think so. Yes, sir.

. . . .

Q Do you recall [the Active Mediterranean Program]?

A Only very vaguely.

Q Do you recall this proposal?

A No, I don't.

*Id.* at 675. Mr. Boyle clearly was not certain when or whether the proposal had actually been submitted to the Navy. He was merely offering his guess based on the date listed on the report (which he did not remember) as to when it “would” have been submitted, had it in fact been submitted. *See id.* at 622-23, 674-77. Mr. Boyle’s guess does not clearly and convincingly establish that the report was communicated or “offered” to the Navy. It may well be possible that the report was submitted, but submission to the Navy prior to the critical date of the patents has not been shown by clear and convincing evidence. For example, Sparton may ultimately have decided not to submit the proposal at all, may have submitted a different version of the proposal, or may have submitted the proposal “sometime after” the critical date. As such, the Government has not established that the Active Mediterranean Proposal constitutes a prior art offer for sale. *See Pfaff*, 525 U.S. at 67. Consequently, the proposal cannot be relied upon as prior art in the Court’s § 103 obviousness determination. *See Takeda*, 492 F.3d at 1355.

#### **4. Sparton’s ECP**

The final alleged prior art in dispute is Sparton’s ECP, which resulted in Mod. 4 to the - 0465 contract. The Government asserts that the ECP is prior art that should be considered in the Court’s obviousness analysis because it constituted an offer for sale under § 102(b) of 300 dual depth sonobuoys. Def.’s Posttrial Br. 24-28, Jan. 9, 2009. As the Court has already noted, to



establish that an offer for sale is prior art under § 102(b), the party challenging validity must prove the two *Pfaff* factors: that the subject matter at issue was the subject of a “commercial” offer for sale and that the subject matter was “ready for patenting.” *Pfaff*, 525 U.S. at 67. Sparton argues that the ECP should not be considered as prior art in the Court’s obviousness analysis for two reasons: (1) because Sparton’s purpose in making the ECP offer was to further its experimentation efforts on the dual depth design and (2) because the proposal was not an “enabling disclosure.” Pl.’s Posttrial Br. 22-25, Feb. 9, 2009.

This Court has already held that the ECP constituted prior art in a previous opinion where the issue was whether Sparton’s claimed invention was anticipated. *Sparton I*, 57 Fed. Cl. at 466-83. On appeal, the Federal Circuit vacated this Court’s determination that the ECP anticipated Sparton’s claims, but it did not state that the ECP is not prior art. Rather, the Federal Circuit essentially held only that the subject matter offered for sale in the ECP did not meet all limitations of Sparton’s patent claims. *Sparton II*, 399 F.3d at 1324. In regard to whether the subject matter offered for sale in the ECP is prior art at all, the Federal Circuit implied that the ECP could still be available for consideration in an obviousness determination. *Id.* at 1325 n.4 (“[N]o findings have been made as to whether the release plate described in the ECP would have rendered the claimed invention obvious by its addition to the prior art. This is still an open issue before the . . . Court [of Federal Claims].”). Thus, to remove any lingering doubt as to the status of the ECP as prior art for an obviousness determination, the Court will reexamine the parties’ arguments in regard to both *Pfaff* factors. In the context of the first *Pfaff* prong (commercial offer for sale), the Court will discuss Sparton’s experimental use argument.

#### **i. The First *Pfaff* Prong and Experimental Use**

As stated above, to constitute a prior art offer for sale under § 102(b), the subject matter in question must have been the subject of a commercial offer. The Federal Circuit has interpreted this *Pfaff* prong as having two subparts: (1) that the alleged offer for sale rose to the level of a “definite” offer which, upon acceptance, would form a binding contract, and (2) that the subject of the offer was something that met all claim limitations. *Scaltech, Inc. v. Retec/Tetra, LLC*, 269 F.3d 1321, 1328-31 (Fed. Cir. 2001).

The first subpart of the first *Pfaff* prong, that the offer was “definite,” was clearly met here, as the ECP was accepted and executed as a contract modification. *See* JX-11; JX-12. The second subpart of the first *Pfaff* prong is not germane to the analysis of this case because the issue is not whether the ECP anticipates the patented inventions but whether the ECP is prior art for purposes of an obviousness inquiry. In other words, it is a given that the device described in the ECP will not meet all the claim limitations. (Indeed, the Federal Circuit has already so held. *See Sparton II*, 399 F.3d at 1324.) This Court’s analysis focuses on comparing the device described in the ECP (and elsewhere) with the patented inventions to determine whether Sparton’s improvement is obvious. *See Allen Eng’g Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1353 (Fed. Cir. 2002) (stating that, in general, the party challenging validity “must show that the [subject matter offered for sale] embodied all of the limitations of [the asserted] claim or would have rendered that claim obvious”) (citing *Tec Air, Inc. v. Denso Mfg. Mich. Inc.*, 192 F.3d 1353, 1358 (Fed. Cir. 1999) and *Pfaff*, 525 U.S. at 68); *accord Baker Oil Tools, Inc. v. Geo Vann, Inc.*,

828 F.2d 1558, 1563 (Fed. Cir. 1987) (“If a device was in public use or on sale before the critical date, then that device becomes a reference under section 103 against the claimed invention.”).

Sparton attempts to avoid the conclusion that the ECP was a commercial offer by arguing that it was primarily directed toward experimentation. If the primary purpose of an offer for sale was experimental, the offer cannot be considered prior art. *U.S. Envtl. Prods. Inc. v. Westall*, 911 F.2d 713, 716 (Fed. Cir. 1990) (citing *Baker Oil*, 828 F.2d at 1563). Factors relevant to whether the purpose of an offer for sale was primarily for experimentation are:

(1) the necessity for public testing, (2) the amount of control over the experiment retained by the inventor, (3) the nature of the invention, (4) the length of the test period, (5) whether payment was made, (6) whether there was a secrecy obligation, (7) whether records of the experiment were kept, (8) who conducted the experiment, ... (9) the degree of commercial exploitation during testing[,] ... (10) whether the invention reasonably requires evaluation under actual conditions of use, (11) whether testing was systematically performed, (12) whether the inventor continually monitored the invention during testing, and (13) the nature of contacts made with potential customers.

*Allen Eng’g*, 299 F.3d at 1353 (quoting *EZ Dock v. Schafer Sys., Inc.*, 276 F.3d 1347, 1357 (Fed. Cir. 2002) (Linn, J., concurring)).

In its posttrial brief, Sparton’s argument on experimental use is, in its entirety, as follows:

The following experimental use negation factors apply: control over its testing during the Sparton program, but before Mod. 4 – J13-15, 17, 19, 21-24, 26, 28-32 and control of the testing after Mod. 4 – J34-39, 42-46, 49-50, 52-56, 58-60, and 62-66; P155.10-18; P210.11; the existence of testing records – *Id.*; secrecy – P210.8, .16-.20, P168.42; the nature of the testing – *see* citations above in regard to the control factor; contract documentation requiring substantial testing and design work – J11-12; and industry custom to provide samples for testing – P210.10, .19.

Pl.’s Posttrial Br. 24-25, Feb. 9, 2009. Thus, Sparton provides only citations to forty-five exhibits, all but three of which do not even include pinpoint citations, and leaves it up to the Court to guess the significance of each exhibit in proving that the purpose of the ECP was primarily for experimentation.<sup>14</sup> Moreover, most of the scant explanation Sparton does offer in connection with its citations appears to lack relevance or is vague to the point of being meaningless. For example, it is not evident why control over testing during the *Deep DIFAR program* (in the above quotation, “control over its testing during the Sparton program”) could have any significance to a determination of whether the primary purpose of the *ECP* was

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<sup>14</sup> Also, at no point in its entire posttrial brief does Sparton cite the trial transcript. If Sparton is willing to rely solely on documentary evidence to make its arguments, the Court questions why Sparton did not simply file a motion for summary judgment, saving the Court, the witnesses, and the Government the time and expense of a three-week long trial.

experimentation. Similarly, the Court is left with no clue as to what about the “nature” of the testing done under the ECP leads Sparton to believe that the purpose of the ECP was experimentation. After having this case on the docket for seventeen years, undergoing a three-week trial, and rendering decisions on a multitude of other equally poorly presented arguments by Sparton, this Court is tired of playing guessing games. Thus, although the Court has reviewed all the cited exhibits, the Court will not individually address Sparton’s citations unless the exhibit’s significance to experimentation in particular was explained by a witness during trial or unless the significance of the exhibit is immediately apparent.

After examining the evidence in this way in application of the first *Pfaff* factor, the Court finds that the purpose of the ECP offer was not primarily for experimentation. After reviewing the thirteen “experimentation” factors set forth in *Allen Engineering*, the Court comes to the following conclusions in light of the evidence presented: (1) although sonobuoys were generally subject to a “secret” security classification, no agreement was in place for Sparton to retain any control over the units to be delivered to the Navy under Phase II of the ECP, and no limitations were placed on the Navy’s use of the units; (2) based on Sparton’s efforts during its internal Deep DIFAR program, it appears that Sparton could easily have conducted any further experiments on the dual depth design without offering them for sale; and (3) the fact that Sparton considered the units called for under the ECP to be prototypes, rather than production models, is irrelevant. The bases for these conclusions are discussed below.

#### **a. Monitoring or Control Over Tests**

Failure to retain control over the invention during the alleged experiment can be dispositive. *See Clock Spring, L.P. v. Wrapmaster, Inc.*, 560 F.3d 1317, 1327 (Fed Cir. 2009) (“We have said that lack of control over the invention during the alleged experiment, while not always dispositive, may be so.”). As discussed above, Phase II of the work to be performed under Sparton’s ECP included the delivery to the Navy of “one production lot of 300 GFE AN/SSQ-53 Sonobuoys for dual depth operation.” DX-130.15. The ECP contained no provisions suggesting that Sparton was to retain any control over the 300 Phase II units. In fact, it was understood by the parties that the Navy would be free to do whatever it wished with those 300 units. DX-121.46-.61, .74; Tr. (Boyle) at 3709 (The 300 Phase II sonobuoys were the Navy’s “to do with as they chose.”). The ECP did not even contain any language indicating that the Navy would be obligated to provide any feedback to Sparton regarding its testing of the Phase II units. Tr. (Boyle) at 3709 (The Navy had no obligation to provide any information back to Sparton.). In reality, the Navy tested the 300 Phase II sonobuoys in various locations throughout the world, without any Sparton involvement and little, if any, feedback was given to Sparton in regard to what was done with the sonobuoys. DX-121.46-.61, .74.

Given Sparton’s citations to internal test reports and memoranda dating from Sparton’s Phase I work under the ECP, the Court assumes that Sparton’s contention that it maintained “control of the testing after Mod. 4” must have been made in regard to the sea tests conducted as part of Phase I of the ECP. Although Navy pilots, divers, aircraft, and recording equipment were necessary to conduct actual sea tests, and Navy engineers were often present to observe and note the results, Tr. (Boyle) at 605-06, 3711-12; DX-92, the Court agrees that Sparton maintained overall control of the Phase I testing, allowing for the necessity of Navy cooperation to sea test

sonobuoys. *See Manville Sales Corp. v. Paramount Sys., Inc.*, 917 F.2d 544, 550-51 (Fed. Cir. 1990) (experimental use exception found to apply where it was necessary to involve governmental entity in a public test). The “necessity of public testing” is, after all, one of the thirteen experimentation factors listed in *Allen Engineering*. However, even though Sparton may have maintained control over the Phase I testing, this does not bear at all on the fact that the ECP included no restrictions on the Navy’s use of the 300 Phase II sonobuoys and that Sparton did not in fact exert any control over anything the Navy ultimately did with the Phase II sonobuoys. DX-121.46-.61, .74; Tr. (Boyle) at 3709.

### **b. The Timing of the ECP**

The fact that Sparton submitted the ECP *after* it had already completed its internal Deep DIFAR program belies Sparton’s attempt to now claim that the ECP was primarily for the purpose of experimentation. First, some of Sparton’s own reports and records predating the ECP indicate that Sparton felt relatively comfortable with its Deep DIFAR design and was interested in selling deep depth sonobuoys to the Navy to attempt to engender additional future contracts. *See, e.g.*, JX-29 (memo instructing Sparton personnel to develop a test program to finish correcting a problem with the Deep DIFAR cable by May 17, 1971 because “[t]he official go-ahead for the design and development of a dual depth DIFAR is imminent”). In particular, one Sparton memo from May 21, 1971 noted that “[i]n the event that we are unsuccessful in our attempt to sell [the twenty Deep DIFAR models] to the Navy for special test purposes, we should proceed with our plan to run an Engineering drop test as part of the dual depth development program.” JX-30. And, it must not be forgotten that in exchange for its efforts under the ECP, Sparton was to be paid \$198,000. *See Allen Eng’g*, 299 F.3d at 1353 (noting that payment for the invention is a factor indicating a commercial, rather than experimental, purpose).

During trial, Mr. Boyle’s testimony also suggested to the Court that Sparton’s purpose in the ECP was to convince the Navy to order dual depth DIFAR sonobuoys in production quantities. Tr. (Boyle) at 378-79 (Under the ECP, the Navy would distribute the 300 sonobuoys to the fleet for “evaluation,” so the Navy could “determin[e] . . . their capability”). In other words, Sparton was offering to sell dual depth sonobuoys, not to further its own experiments, but to get the Navy interested in purchasing them in larger quantities. *Id.* at 3516-17 (The purpose of delivering the 300 Phase II buoys to the Navy was “to allow *the Navy* to determine the efficacy of a dual-depth DIFAR.” (emphasis added)). And, according to Mr. William Graff, the Naval employee responsible for distributing the ECP sonobuoys to the fleet, the Navy accepted Sparton’s ECP so that it could evaluate whether the design would suit the Navy’s needs.<sup>15</sup> DX-121.53-.55 (Mr. Graff stating that the Navy wanted to test the effectiveness of having hydrophones at deeper depths in regard to submarine detection). However, it has long been the law that “experimentation conducted to determine whether the [invention] would suit a particular customer’s purposes does not fall within the experimental use exception.” *Allen Eng’g*, 299 F.3d at 1355 (citing *In re Theis*, 610 F.2d 786, 792 (C.C.P.A 1979)).

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<sup>15</sup> The Navy’s tests involved simply deploying some dual depth sonobuoys (from Sparton, Magnavox, and/or Sanders) set for deep depth deployment at the same time as deploying standard SSQ-53 shallow depth sonobuoys, then comparing the signals obtained from both types to determine which was more effective at detecting submarines. DX-121.53-.55.

Moreover, it appears to the Court that Sparton had no problem scheduling air drop sea tests before it offered to sell 300 dual depth DIFAR sonobuoys to the Navy in the ECP. Tr. (Boyle) at 3712-14 (explaining that the Navy would accommodate virtually any test plan submitted by its sonobuoy contractors: “I don’t recall ever having been denied the use of test facilities, except in the case maybe they couldn’t get an aircraft on station.”); JX-17 (December 1970 test plan for the Deep DIFAR program which was accommodated by the Navy prior to the ECP). Thus, if Sparton truly believed that it still needed to conduct experimentation to achieve a dual depth design, it seems that Sparton could easily have done so without offering to sell 300 units to the Navy. In other words, the purpose of the offer to sell in the ECP was not primarily for experimentation, as experimentation could have proceeded without an offer to sell. It remains that Sparton’s purpose in submitting the ECP was to further commercial exploitation of its design.

**c. Sparton’s Argument Regarding “Engineering” vs. “Production” Models**

During trial, Sparton made much of the fact that both it and the Navy considered the 300 units delivered under the ECP to be “engineering models” or “experimental” units, rather than standard “production” units. Though Sparton does not explicitly make this point in its brief, it seems that Sparton believes that an offer to sell “engineering models” or “experimental” units is, necessarily, an offer that is primarily for “experimentation.”<sup>16</sup>

During trial, Mr. Gerald Martin, Sparton’s contract expert, testified that Mod. 4 was not a contract for “production” models, despite the use of that term in the ECP’s statement of work. Tr. (Martin) at 1118-22. He believed that the 300 Phase II models were “experimental” or “engineering test” units, because they were not given federal stock numbers by the Navy, as was the Navy’s practice for “engineering test” units. *Id.* He also noted that the ECP did not have a line-item requirement for technical data concerning the units, such as would ordinarily be required “to support the production units.” *Id.*

The Court does not see how the Navy’s inventory categorization of the Phase II units bears on whether the sale and offer for sale in the ECP were “commercial,” as that term is used in the *Pfaff* legal standard. See *In re Cygnus Telecomms. Tech., LLC, Patent Litig.*, 536 F.3d 1343, 1355 (Fed. Cir. 2008) (Whether a device sold was viewed as being suitable for full scale ordinary operation is irrelevant to the on-sale bar inquiry.); *Zacharin v. United States*, 213 F.3d 1366, 1370 (Fed. Cir. 2000) (“[T]he fact that the products sold to the Army were to be used for testing rather than as routine production units, is not sufficient to avoid the effect of the on-sale bar....”). An offeree’s view on the development status of a device it purchases is simply not a factor courts consider in an on-sale bar analysis. *Allen Eng’g*, 299 F.3d at 1353-54; *cf.*, *Gen. Elec. Co. v. United States*, 654 F.2d 55, 59-60 (Ct. Cl. 1981) (that devices are sold subject to testing by the buyer does not negate the on-sale bar under § 102(b)).

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<sup>16</sup> Because Sparton does not cite the trial transcript anywhere in its posttrial brief, Sparton’s reasoning on this and other points must be inferred.

Mr. Boyle and Sparton's financial expert, Mr. Henry Melvin, also testified that the units sold to the Navy were "engineering models" or "experimental" units, although they based their opinions on the process by which the units were made rather than the inventory status of the units on which Mr. Martin based his opinion. Mr. Boyle testified that an engineering unit would be something made by hand and may not necessarily be fully functional, depending on which features were being tested. Tr. (Boyle) at 402-03. However, in a declaration that Sparton submitted into evidence, Mr. Boyle stated that the engineering units called for under Phase I of the ECP were fully functional. PX-155. Mr. Melvin based his conclusion on an examination of financial records of Sparton's job costs and concluded that they show that the work performed under the ECP was "experimental." Tr. (Melvin) at 1399-00. Mr. Melvin noted that the work done under the ECP included little or no costs for "process labor," "production supervision," or "hard-tooling," items that would ordinarily exist in the cost sheets for "production" jobs. In contrast, Mr. Melvin noted that the costs for "engineering labor" for the ECP work were high, indicating at least to him that this was an experimental contract. *Id.* at 1399-02.

It seems to the Court that Mr. Martin, Mr. Boyle, and Mr. Melvin were using the word "experimental" to denote something different than the customary patent law definition of the word. They referred to sonobuoys as "experimental" or "engineering models" to account for the fact that the units were prototypes or that Sparton had not yet approved its ECP design for mass production. However, as the Federal Circuit explained in *EZ Dock*, 276 F.3d at 1356-57 (emphasis added):

It bears repeating that what is important to an assessment of the commercial versus experimental significance of a sale is *not necessarily the posture of the invention's overall development*, but the nature or purpose of the particular use to which the invention that is the subject of that sale is to be put. *See Manville Sales Corp. v. Paramount Sys., Inc.*, 917 F.2d 544, 550, 16 USPQ2d 1587, 1592 (Fed.Cir.1990) ("a sale that is primarily for experimental purposes, as opposed to commercial exploitation, does not raise an on sale bar"); *U.S. Env't'l Prods., Inc. v. Westall*, 911 F.2d 713, 716, 15 USPQ2d 1898, 1901 (Fed.Cir.1990) ("[a] section 102(b) bar is avoided if the primary purpose of the sale was experimental"); *Barmag Barmer Maschinenfabrik AG v. Murata Mach., Ltd.*, 731 F.2d 831, 839, 221 USPQ 561, 567 (Fed.Cir.1984) (quoting *In re Theis*, 610 F.2d 786, 793, 204 USPQ 188, 194 (CCPA 1979) ("[t]he experimental exception applies only if the commercial exploitation is merely incidental to the primary purpose of experimentation to perfect the invention")).

Thus, the question posed by the experimental use doctrine, assessed under the first prong of the two-part on-sale bar test of *Pfaff*, is not whether the invention was under development, subject to testing, or otherwise still in its experimental stage at the time of the asserted sale. Instead, the question is whether the transaction constituting the sale was "not incidental to the primary purpose of experimentation," i.e., whether the primary purpose of the inventor at the time of the sale, as determined from an objective evaluation of the facts surrounding the

transaction, was to conduct experimentation. *Scaltech, Inc. v. Retec/Tetra, L.L.C.*, 178 F.3d 1378, 1384 n. 1, 51 USPQ2d 1055, 1059 n. 1 (Fed.Cir.1999).

Thus, while it may bear *some* relevance to the Court's overall inquiry under the first *Pfaff* factor, the fact that the 300 sonobuoys offered for sale in the ECP may have been considered by Sparton to be prototypes, engineering models, experimental units or any other such moniker is certainly not dispositive of whether the purpose of the ECP was primarily for experimentation. An offer to sell devices that are considered "prototypes," for the purchaser to test, can still be prior art under § 102(b). *Zacharin*, 213 F.3d at 1370 ("[T]hat the sale . . . was made in the context of a research and development contract . . . does not suffice to avoid the on-sale bar."); *Atlanta Attachment Co. v. Leggett & Platt, Inc.*, 516 F.3d 1361, 1366 (Fed. Cir. 2008) ("The fact that Sealy [the purchaser] experimented with the prototypes is immaterial because the experimental use exception only concerns the actions of the inventors and their agents, and Sealy was not under the inventors' control.").

In conclusion, the Court does not agree with Sparton that the purpose of the offer contained in the ECP was primarily for experimentation. Instead, the Court finds that the ECP was a "commercial" offer and that the Government has established the first *Pfaff* factor by clear and convincing evidence. To finish its analysis on whether the ECP is prior art under § 102(b) that can be considered in the Court's obviousness determination, the Court will now turn its attention to the second *Pfaff* prong.

## ii. The Second *Pfaff* Prong

The second requirement under the *Pfaff* test for determining whether subject matter offered for sale can be considered prior art is whether the subject matter offered for sale was "ready for patenting." *Pfaff*, 525 U.S. at 67. This means that "the inventor must [have been] able to prepare a patent application, that is, to provide an enabling disclosure as required by 35 U.S.C. § 112." *Space Sys./Loral, Inc. v. Lockheed Martin Corp.*, 271 F.3d 1076, 1080 (Fed. Cir. 2001). *Pfaff* explains that this can be established "in at least two ways." 525 U.S. at 67. One way is to show that the invention had been reduced to practice prior to the critical date. *Id.* Another method is "by proof that prior to the critical date the inventor had prepared drawings or other descriptions of the invention that were sufficiently specific to enable a person skilled in the art to practice the invention." *Id.* at 67-68.

The documents in the record relevant to determining whether the sonobuoy with the DePew release plate qualifies as prior art include not only the ECP itself, but also a 1992 affidavit of Mr. DePew which describes the release plate that he designed and which contains two drawings of it.<sup>17</sup> See DX-95.102-.111. One drawing dates from 1969 (well prior to the ECP) and is a rough sketch taken from Mr. Depew's confidential engineering notebook; the other, a clear and detailed drawing, was made in 1992, apparently in conjunction with the preparation of the affidavit itself. *Id.* at .108, .111.

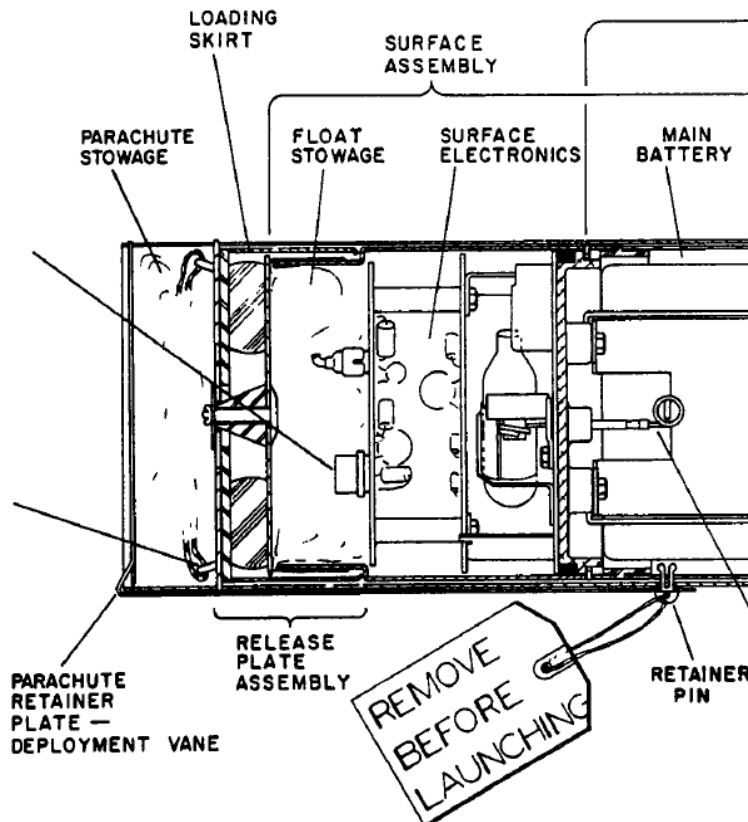
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<sup>17</sup> The affidavit was prepared by Mr. Depew in support of Sparton's administrative claim against the Navy. In fact, it was prepared at Mr. Boyle's (Plaintiff's expert's) request. Tr. (Boyle) at 608.

Sparton’s posttrial brief focuses on the DePew release plate, arguing that it cannot be considered prior art because the ECP “(even in conjunction with Depew’s confidential notebook) was not an enabling disclosure at the time the offer or sale occurred.” Pl.’s Posttrial Br. 22, Feb. 9, 2009. Sparton supports this argument by quoting the testimony of its expert, Mr. Boyle, who asserted: “There were no sufficiently specific drawings, sketches or specifications which would enable one skilled in this sonobuoy art to practice the disclosure in ECP 0465-2, even as modified or amplified by Depew’s 1969 bottom plate confidential engineering book sketch.” *Id.* at 23 (quoting Mr. Boyle). Sparton also points out that the DePew device (i.e., the release plate) “was never manufactured, constructed[,] tested or fully designed.” *Id.* at 22.

The Government does not argue that the DePew release plate was ever reduced to practice. Instead, the Government maintains that the evidence shows that the DePew release plate was ready for patenting at the time of the ECP, arguing that its expert, Mr. Hudson, “explained how the person of ordinary skill in 1972 would understand how the Depew device operated.” Def.’s Posttrial Br. 27, Jan. 9, 2009. In addition to the ECP, Mr. Hudson testified that he also had read the 1992 DePew affidavit that contained the 1969 rough sketch of the release plate design and the clear and detailed 1992 drawing. Tr. (Hudson) at 2298.

In determining whether the DePew device qualifies as prior art, the Court will first consider the ECP. The Court notes that the ECP included both drawings *and* descriptions. The relevant part of one drawing, which showed a cross-sectional view of the entire sonobuoy, appears below:





DX-130.6. The ECP did not include separate drawings of the release plate or any other individual components.

There are two descriptions in the ECP that refer to the DePew release plate. At one point the ECP explains, “The drogue chute is stowed above the release plate and is retained by a deployment vane. The deployment vane engages two slots in the housing and is secured to the buoy by a push-in plastic retainer pin.” *Id.* at .4. Elsewhere, the ECP further explains, “As the float inflates it pushes a trigger plate located below the release-plate assembly. This action disengages the release-plate latches from the sonobuoy housing and forcibly ejects the release-plate from the buoy.”<sup>18</sup> *Id.* at .8.

The Government’s expert, Mr. Hudson, testified that, *looking at this ECP drawing alone*, he would “have a little difficulty” understanding exactly how the release plate operates. Tr. (Hudson) at 2295-96. As Mr. Hudson indicated in his testimony, the drawing shows the release plate at the far left of the “Release Plate Assembly.” *Id.* Similarly, one can discern that the release plate extends into the housing of the sonobuoy. A conical structure that protrudes through the release plate also can be seen. *Id.* at 2295-97. According to Mr. Hudson’s testimony, from the drawing alone, he concluded that the release plate operated in this way:

Looking at this drawing alone, I would have made the assumption that inflation of the bag [i.e., the flotation device] pushed against that device that is a conical shape; I would have thought that it was then going to bend the plate ... and by bending the plate, it would be removing the fingers from the housing.

*Id.* at 2296.

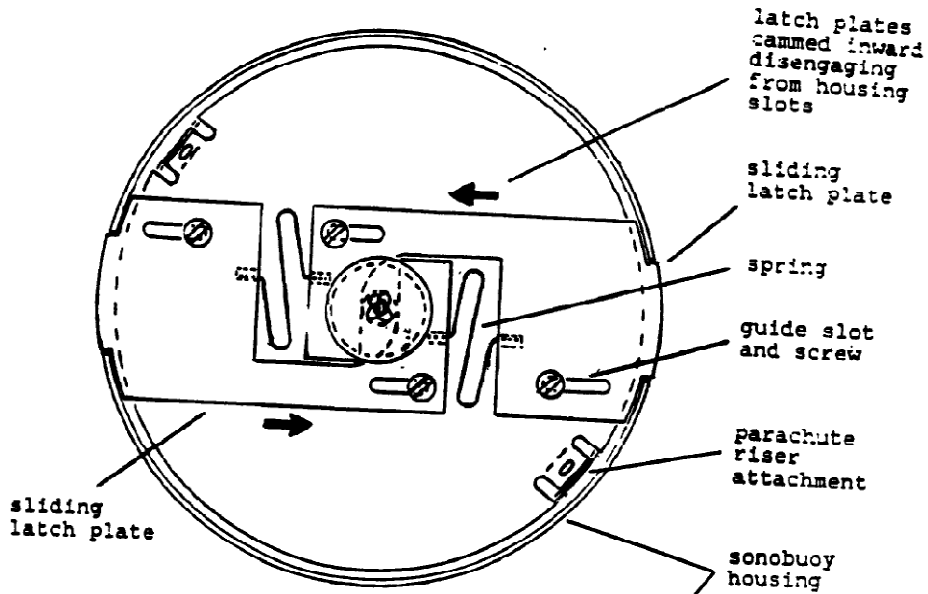
Mr. Hudson testified that he was able to understand readily how the DePew release plate operated only after looking at the 1992 DePew affidavit, which, as mentioned above, contained the clear and detailed drawing of the release plate and the 1969 rough sketch taken from Mr. DePew’s confidential engineering notebook. *Id.* at 2297-98. After looking at the 1992 affidavit, Mr. Hudson described the operation on the DePew release plate in this way:

When I looked at that design, I realized that, rather than bending the plate, what it really does is it acts like a cam to slide two plates away from the fingers. The fingers are held out with a spring, so you’re working against some small springs.

*Id.* The clear and detailed drawing of the top view of the release plate as depicted in the affidavit is shown below:

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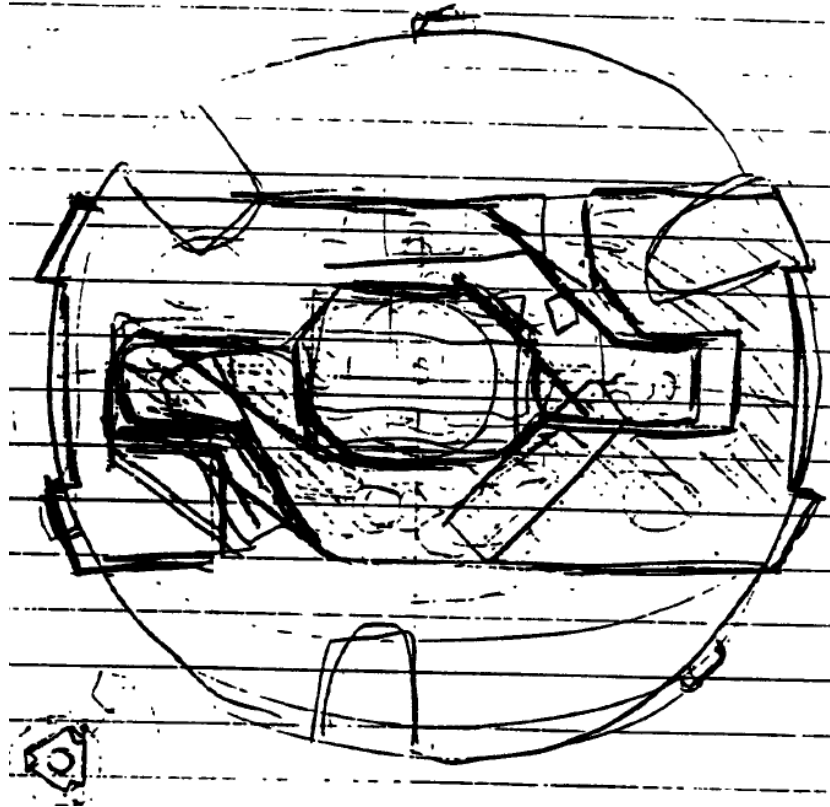
<sup>18</sup> Although the Court is able to understand this description, it does not comport precisely with the drawing. It does not appear that the inflating float pushes a trigger plate located *below* (i.e., to the right of) what is labeled as the release plate assembly in the drawing. The trigger plate must be one of the plates in the drawing above (i.e., to the left of) the float stowage and within what is labeled as the release plate assembly.



DX-95.108.

In Mr. Hudson's testimony regarding the ECP, he discussed the diagram of the sonobuoy contained in it, but he did not mention the descriptions in the ECP. The Court notes, however, that the latch plates and slots mentioned in the ECP descriptions (and not shown on the ECP diagram) are clearly shown and labeled on the top view.

The 1992 affidavit also included a rough sketch of the release plate, taken from Mr. DePew's confidential engineering notebook and drawn in 1969. It is reproduced here:



*Id.* at .111. Although Mr. DePew’s 1969 notebook sketch is considerably less refined than the version he prepared for his 1992 affidavit, it is evident that it depicts the same basic design features, showing the sliding latch plate and slots.

In addition to the close resemblance between the drawings, the description in the 1992 affidavit, which allowed Mr. Hudson to fully understand the DePew release plate’s operation, also approximately matches the written description that had been included in the 1971 ECP. For example, the affidavit explained that the release plate’s components “all function[] together to provide for the radial retraction of the two latch plates from their engagement in the housing-wall slots in response to the upward motion of the cam, as urged by the float inflation.” *Id.* at .101. The 1971 ECP’s description was quite similar: “As the float inflates it pushes a trigger plate located below the release-plate assembly. This action disengages the release-plate latches from the sonobuoy housing . . . .” DX-130.8. From this evidence, the Court concludes that the elaboration contained in Mr. DePew’s 1992 affidavit does not represent any post-ECP development of the invention.<sup>19</sup> Moreover, the Court also concludes that the further detail Mr. DePew provided in his 1992 affidavit could have just as easily been explained in the 1971 ECP. It may be that someone other than Mr. DePew would have considerably more difficulty practicing Mr. DePew’s invention based on his rough 1969 notebook sketch, without the aid of the cleaner 1992 drawing, but difficulty does not preclude the ability to practice the invention.

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<sup>19</sup> Even so, *Pfaff* does not preclude further development after an invention is ready for patenting. *Pfaff*, 525 U.S. at 67 n.14.

The Court finds that Mr. Hudson is a more reliable witness than Mr. Boyle as to whether the drawing and the description in the ECP and the 1969 rough sketch sufficiently describe how the DePew release plate worked. Mr. Hudson quite candidly admitted that one would have a little difficulty in understanding exactly how the release plate worked from the drawing in the ECP alone. Tr. (Hudson) at 2295-96. At one point during his cross-examination, Mr. Boyle claimed that he has never been able to understand how the ECP release plate worked, despite others' attempts to explain it to him. Tr. (Boyle) at 411-12. However, during his re-direct testimony offered as part of Sparton's rebuttal case, Mr. Boyle described the operation of the ECP release plate in some detail. *Id.* at 3460-61.

In arguing that the notebook sketch and ECP were not enabling because they were not clear or specific enough to allow somebody skilled in the art to practice the invention, it seems that Sparton fails to appreciate the precise nature of the Court's inquiry here.

This conclusion is based on the few cases and the very little discussion that Sparton devotes to the issue of enabling disclosure. In addition to *Pfaff* and *Space Systems*, the only other cases that Sparton cites in both its pretrial and posttrial briefs are *Brown v. 3M*, 265 F.3d 1349 (Fed. Cir. 2001) and *Amgen, Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313 (Fed. Cir. 2003).

Sparton does not discuss *Brown* and provides no citation to any specific language in it, although Sparton's mention of *Brown* in both briefs includes "(reference not enabled)." Mem. of Fact & Law 15, Feb. 6, 2008; Pl.'s Posttrial Br. 23, Feb. 9, 2009. It turns out that *Brown* is a garden-variety anticipation-by-a-prior-patent case, and it contains the unremarkable observation that "[t]o anticipate, every element and limitation of the claimed invention must be found in a single prior art reference, arranged as in the claim." *Brown*, 265 F.3d at 1351. Indeed, the case does not even contain the word, "enable," or any of its variations. Thus, the Court is at a loss as to how this case contributes to the determination of whether the DePew device was sufficiently enabled as to be ready for patenting.

Moving on to *Amgen*, Sparton draws the Court's attention to the following quotation in that case:

A claimed invention cannot be anticipated by a prior art reference if the allegedly anticipatory disclosures cited as prior art are not enabled. Long ago, our predecessor court recognized that a non-enabled disclosure cannot be anticipatory (because it is not truly prior art) if that disclosure fails to "enable one of skill in the art to reduce the disclosed invention to practice."

Pl.'s Posttrial Br. 23, Feb. 9, 2009 (citing *Amgen*, 314 F.3d at 1354) (citations to pre-*Pfaff* cases omitted).

The context of this quotation was the assertion of a patent (Sugimoto) as prior art where the district court concluded that the patent was not prior art because it was not proven to be enabled. Because the prior art reference was a patent, it is unclear whether by "enabled" the court meant the enablement requirement of 35 U.S.C. § 112 or the lesser enablement requirement

of 35 U.S.C. § 102(a).<sup>20</sup> In either event, *Amgen* was not discussing whether the alleged prior art was “ready for patenting.” Furthermore, the Court notes that the quotation within the quotation speaks of “enabl[ing] one of skill in the art to *reduce the disclosed invention to practice.*” *Amgen*, 314 F.3d at 1314 (emphasis added) (citations omitted). The question before this Court, however, is whether “the inventor must [have been] able to prepare a patent application, that is, to provide an enabling disclosure as required by 35 U.S.C. § 112.” *Space Sys.*, 271 F.3d at 1080. Finally, the *Amgen* court itself stated that the “critical issue” before it in the context of the quotation recited by Sparton was not “whether Sugimoto must be enabled, but rather whether it is the plaintiff or the defendant who bears the burden of proof with respect to that question.” *Amgen*, 314 F.3d at 1354-55. Thus, *Amgen* is not a case that sheds much light upon the *Pfaff* ready for patenting requirement.

The issue before the Court is not whether the notebook sketch and ECP actually met the standard for enablement under 35 U.S.C. § 112. The Court is not deciding whether an enabling disclosure *was* made but whether it *could have been* made. As *Space Systems/Loral* instructs, if the evidence demonstrates that the DePew release plate was complete at the time of the ECP such that the enabling disclosure required by § 112 could have been made, then the release plate was ready for patenting, regardless of whether an enabling disclosure was actually made. See *Space Sys.*, 271 F.3d at 1080.

The goal of the second, “ready for patenting,” prong of the *Pfaff* test is the determination that the inventor’s concept was complete. *Pfaff*, 525 U.S. at 66 (“The word ‘invention’ must refer to a concept that is complete ....”). *Pfaff* states that one can demonstrate that an invention was ready for patenting “in at least two ways.” *Id.* at 67. “At least” makes clear that the Supreme Court was not providing an exhaustive list. Thus, “reduction to practice ordinarily provides the best evidence that an invention is complete. But just because reduction to practice is sufficient evidence of completion, it does not follow that proof of reduction to practice is necessary in every case.” *Id.* at 66. The next best evidence may be the existence of drawings or descriptions that would have been enabling had they been disclosed.

But even without satisfactorily enabling drawings or descriptions in existence on the critical date, a party still can demonstrate that the invention was complete, such that the enabling disclosure could have been made. For example, in *Robotic Vision Systems, Inc. v. View Engineering, Inc.*, 249 F.3d 1307, 1312 (Fed. Cir. 2001), a co-inventor (Yonescu) explained an invention to a colleague (Briceno) *before the critical date* in a manner sufficiently specific to enable Briceno to understand and write software code implementing the invention (*possibly after the critical date*), demonstrating that the invention was ready for patenting at the time of the explanation. The Federal Circuit did not think that it was detrimental that the software, which proved that the explanation was “sufficiently specific for Briceno to understand the invention and to write the software needed to implement the method,” might have been actually written *after* the critical date. *Id.* at 1311. The court stated: “Regardless whether or not the software was reduced to practice prior to the critical date, it is undisputed that Briceno ultimately completed

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<sup>20</sup> “The standard for what constitutes proper enablement of a prior art reference for purposes of anticipation under section 102 ... differs from the enablement standard under section 112.” *Rasmusson v. SmithKline Beecham Corp.*, 413 F.3d 1318, 1325 (Fed. Cir. 2005).

the software program pursuant to Yonescu’s description of the invention.” *Id.* It further stated: “[W]hether or not the software needed to implement the claimed method existed at the time of the disclosure is irrelevant, provided that the disclosure of the invention was made prior to the critical date and was sufficiently specific to enable a person skilled in the art to practice the invention.” *Id.* In other words, Briceno’s software, written possibly after the critical date, served as proof that Yonescu, before the critical date, explained the invention to Briceno in sufficient detail to justify the trial court’s conclusion that the invention was ready for patenting. Similarly, the 1992 affidavit, which includes an explanation and a drawing clearly depicting the design of the release plate, can serve as proof that Mr. DePew was “able to prepare a patent application” before the critical date, although only the ECP and the 1969 rough sketch were in existence at that time. *See Space Sys.*, 271 F.3d at 1080.

Here, the totality of the evidence—the ECP drawing and descriptions, the 1992 affidavit with the 1969 rough sketch and the 1992 clear and detailed drawing, and the testimony of Mr. Hudson—demonstrates that the DePew release plate was complete and ready for patenting at the time of the ECP. The question is not whether the ECP and the 1969 notebook sketch meet the standard for an enabling disclosure, but rather whether the evidence as a whole demonstrates that the enabling disclosure could have been made. The elaboration Mr. DePew provided in his 1992 affidavit does not suggest further development subsequent to the ECP, and it could have been provided at the time of the ECP. Aided by the cleaner drawing and explanation provided in the 1992 affidavit, all the key features can be matched up with the rougher 1969 notebook sketch and 1971 ECP description. The Court is convinced that, had he been asked to do so at the time of the ECP, Mr. DePew would have been “able to prepare a patent application,” including the enabling disclosure required by 35 U.S.C. § 112. *See id.*

Because the Court finds that the ECP design was the subject of a commercial offer for sale, the primary purpose of which was not experimentation, and that the design was ready for patenting when the offer was communicated to the Navy, the ECP is prior art under § 102(b) and will be considered in the Court’s § 103 obviousness analysis. Having determined that the prior art includes (1) U.S. Patents to Tatnall, Halberg, Bannister, Adler, Wojciechowski, Dinolfo, and Cotilla and (2) Sparton’s ECP, the Court will now proceed to the next *Graham* factor.

### **C. Differences Between the Claims and the Prior Art**

In addition to defining the level of skill in the art and identifying the scope and content of the prior art, the third *Graham* factor a court must consider in making an obviousness determination is the differences between the claims of the asserted patents and the identified prior art. *KSR*, 550 U.S. at 406 (citing *Graham*, 383 U.S. at 17-18). Here, the Government asserts that all elements of the claims of the ‘120 and ‘233 patents are either disclosed identically in the prior art or reflect merely an obvious or trivial departure from the prior art. There are 8 claims in the ‘120 patent and 3 claims in the ‘233 patent. In its posttrial brief, Sparton identified several elements of claims 1-4 and 7 of the ‘120 patent and claims 1-3 of the ‘233 patent that it believes are not found in the prior art, but did not separately address the elements of claims 5, 6, and 8 of the ‘120 patent at all. *See Pl.’s Posttrial Br.*, Feb. 9, 2009. However, Sparton did not go so far as to concede expressly that the remaining elements it did not identify in claims 1-4 and 7

of the '120 patent or claims 1-3 of the '233 patent are met by the prior art, or that all elements recited in claims 5, 6, and 8 of the '120 patent are met. *Id.*

In general, the '120 and '233 patents disclose a sonobuoy very much like the dual depth sonobuoys Sparton delivered to the Navy under the ECP. Each specification depicts and describes an upside-down deployment scheme utilizing Mr. Widenhofer's single-piece deformable release plate. The scope of the claims of the '120 patent generally encompass a sonobuoy as a whole. Claim 1 of the '120 patent, as an example, recites the following:

A sonobuoy component deployment system comprising, in combination, a nonbouyant [sic] casing having an open upper end and a permanently closed lower end, signal receiving and transmitting apparatus within said casing slidably removable therefrom through said upper end thereof, inflatable float means mounted in said casing adjacent said upper end slidably removable from said casing and located intermediate said casing upper end and said signal receiving and transmitting apparatus, flexible cable means connecting said apparatus to said float means of a length determining the operating depth of said apparatus, releasable retaining means mounted on said casing adjacent said upper end and intermediate said upper end and said float means retaining said float means and apparatus within said casing and permitting said float means and apparatus to deploy from said casing upper end upon said retaining means releasing from said casing, said inflatable float means being located adjacent said retaining means on the opposite side thereof with respect to said casing upper end, float inflating means within said casing for inflating said float means upon said casing being immersed, inflation of said float means releasing said retaining means from said casing wherein release of said retaining means from said casing permits said casing to fall below said float means and deploy said apparatus from said casing upper end at the operating depth of said apparatus.

JX-1.6. In contrast, the scope of the claims of the '233 patent are generally limited to a release plate design for a sonobuoy. Claim 1 of the '233 patent recites:

A retainer plate for a sonobuoy comprising a generally planar body member of deformable material having a generally circular periphery, a pair of locking tabs radially extending from said body periphery located at substantially diametrically opposed locations on said body member, and a weakened hinge line defined on said body member intermediate said locking tabs facilitating and controlling deformation of said body member upon a deforming force being applied to said body member transverse to the general plane thereof, said hinge line being diametrically defined on said body member on a diameter transversely related to a diameter intersecting said locking tabs, said hinge line comprises at least one elongated opening diametrically defined in said body member defining hinge portions of the material of said body member, the length of said opening being substantially perpendicular to a diameter intersecting said locking tabs.

JX-3.1. Notably, none of the claims of either patent specifically recite that the invention achieves dual or deep depth capability or that the invention conforms to any particular Navy performance requirements.

In a 2005 opinion, the Court interpreted the meaning of a number of disputed terms from both the '120 and '233 patents. With this interpretation in mind, the Court will examine the parties' arguments on the differences between the claims of the patents and the prior art.

## **1. The Claims of the '120 Patent**

Because the claims of the '120 patent are generally directed to a sonobuoy as a whole, rather than being limited strictly to the release plate assembly, as are the claims of the '233 patent, many of the elements recited in the '120 patent's claims are recited in general terms and are clearly found in the prior art (e.g., a cable to determine the depth of the hydrophone). Indeed, during cross-examination, Mr. Boyle conceded that, from a technical standpoint, the only difference between the device depicted in Sparton's ECP and the invention recited in the '120 patent's claims is the release plate mechanism. Tr. (Boyle) at 3741-42.

### **i. Claim 1**

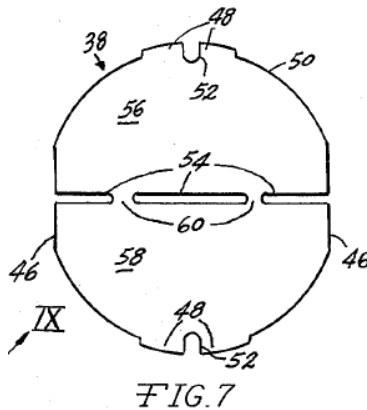
The only element of claim 1 that Sparton identifies in its posttrial brief as being absent from the prior art is the "releasable retaining means . . . retaining said float means and apparatus within said casing and permitting said float means and apparatus to deploy from said casing upper end upon said retaining means releasing from said casing." Pl.'s Posttrial Brief 25, Feb. 9, 2009. Sparton asserts that this is missing from the prior art because "a plate with holes, portions and tabs [is] not shown." *Id.*

The obviousness inquiry, however, does not properly focus on whether the prior art discloses "a plate with holes, portions and tabs," but whether it discloses a releasable retaining means that corresponds to the elements of claim 1. The problem is that Sparton is basing its argument on an incorrect interpretation of "releasable retaining means."<sup>21</sup> In its 2005 Claim Construction Ruling, the Court interpreted this element to be a "means" element under § 112 ¶ 6. *Sparton III*, 68 Fed. Cl. at 42. The Court found that the function of this means element is (1) retaining the float means and apparatus in the casing and (2) permitting them to deploy from the casing when the float means inflates and that the corresponding structure in the specification is the generally circular release plate 38 identified in the specification of the '120 patent:

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<sup>21</sup> In fact, depending upon whether the topic is infringement or validity, Sparton tends to adopt drastically different positions on what features a device must possess to meet the limitations of its claims. For example, when discussing validity, Sparton decries any suggestion that a prior art device could meet the claimed limitations unless the device has a flat release plate that includes an elongated opening along a diameter that is precisely perpendicular to a diameter that intersects two tabs. In contrast, when discussing infringement, Sparton unabashedly cites testimony from its expert that devices that have non-diametrical elongated openings, or that do not even have openings, infringe the claims.





*Id.*; JX-1.3. Thus, by stating that a releasable retaining means must be “a plate with holes, portions and tabs,” Sparton is, in a way, incorporating more detailed structure for this element than the Court had originally explicitly discussed. Although it is true that the generally circular release plate 38 is depicted in the ‘120 patent as having holes, solid portions, and tabs, the Court is not convinced that all these details are strictly necessary to the identified “retaining” and “permitting” functions.

As the Federal Circuit explained in *Odetics, Inc. v. Storage Technology Corp.*, in regard to means elements:

The individual components, if any, of an overall structure that corresponds to the claimed function are not claim limitations. Rather, the claim limitation is the overall structure corresponding to the claimed function. This is why structures with different numbers of parts may still be equivalent under § 112, ¶ 6, thereby meeting the claim limitation. See, e.g., [sic] *Al- Site*, 174 F.3d at 1321-22, 50 U.S.P.Q.2d at 1169 (upholding jury verdict of § 112, ¶ 6 equivalence between “a mechanically-fastened loop.. [sic] includ[ing] either the rivet fastener or the button and hole fastener” and “holes in the arms [of an eyeglass hanger tag]”). The appropriate degree of specificity is provided by the statute itself; the relevant structure is that which “corresponds” to the claimed function. See, e.g., *Chiuminatta*, 145 F.3d at 1308-09, 46 U.S.P.Q.2d at 1756 (structure “unrelated to the recited function” disclosed in the patent is irrelevant to § 112, ¶ 6); *Valmont*, 983 F.2d at 1044, 25 U.S.P.Q.2d at 1455 (identifying structure referring to the claimed function). *Further deconstruction or parsing is incorrect.*

*Odetics, Inc. v. Storage Tech. Corp.*, 185 F.3d 1259, 1268 (Fed. Cir. 1999) (emphasis added). Thus, in an analysis under § 112 ¶ 6, once a structure or component has been identified in the specification as corresponding to the recited function, specific details of the component that are unnecessary to perform the claimed function are not to be imported into the claim itself. *Caterpillar, Inc. v. Deere & Co.*, 224 F.3d 1374, 1380 (Fed. Cir. 2000). Moreover, in the context of an infringement analysis, a claim limitation is met if a device or component in the prior art is structurally equivalent (or, “insubstantially different”). *Chiuminatta Concrete Concepts, Inc. v. Cardinal Indus., Inc.*, 145 F.3d 1303, 1309 (Fed. Cir. 1998).

The '120 patent teaches that the release plate 38 is able to “retain” components in the sonobuoy casing because it has peripheral tabs 48, shown above, that engage the casing and because it has a dimension such that it blocks the components beneath it (primarily the float) from sliding out of the buoy. The plate can “permit” the float to release because it is deformable in a manner that causes the tabs to disengage the casing:

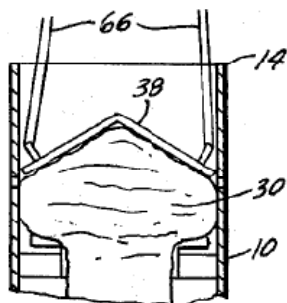


FIG. 9

JX-1.3. The parties seem to be in basic agreement on this point. *See* PX-249.1; DX-220.17-.18. However, the “holes and portions” referred to by Sparton are not essential to the performance of either of these functions. The “holes and portions” control *where* the release plate deforms. However, causing the plate to deform at a specific point, that is, at two “portions” 60 defined by holes 54, is a level of functional specificity not recited in claim 1. Therefore, the Court does not agree with Sparton that, to satisfy the “releasable retaining means” limitation, the prior art must show a release plate having “holes and portions.”<sup>22</sup>

Having determined Sparton’s interpretation of the term to be incorrect, the Court now turns to the prior art.

The patent to Dinolfo (which was not cited during prosecution of the ‘120 patent) discloses two release plate embodiments that have tabs which engage a sonobuoy casing to retain components thereof inside the casing. Both embodiments are disclosed as water-impact plates allowing for bottom deployment of the sonobuoy components. JX-158.3. The first embodiment, shown below in Figure 3, is formed of cast iron and, upon experiencing the force of water-impact, cracks along weakened hinge lines 32, 33, 34 formed near the intersection of the tabs 19, 21, 22 and the main portion of the plate 13:

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<sup>22</sup> This approach also creates a consistent reading with the claims depending from claim 1, which have been construed to recite enough structure for the “retaining means” element so as to remove them from § 112, ¶ 6. If all the details of the release plate were read into claim 1, then there would be little, if any, distinction between the scope of claim 1 and the scope of some of the dependent claims. *See Wenger Mfg., Inc. v. Coating Mach. Sys., Inc.*, 239 F.3d 1225, 1233 (Fed. Cir. 2001).

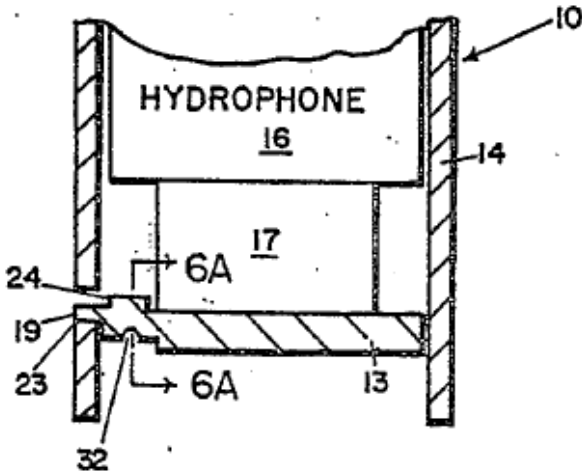


Fig. 2

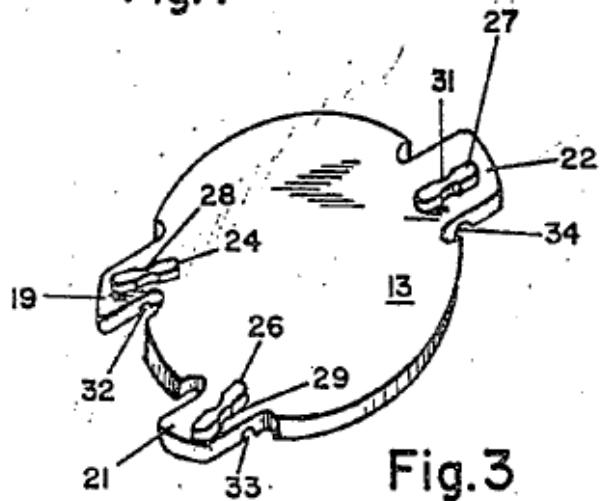


Fig. 3

*Id.* at .1, .4. Dinolfo discloses that the second embodiment, shown below in Figures 5 and 5A, is made of deformable sheet metal and disengages its tabs 43 from the sonobuoy casing 14 by bending at the intersection of the tabs 43 and the main portion of the plate 42. *Id.* at .4. However, as noted above, the deformation is not caused by inflation of the sonobuoy's float, but rather by the upward force resulting from the sonobuoy's impact with the surface of the water into which it is dropped:

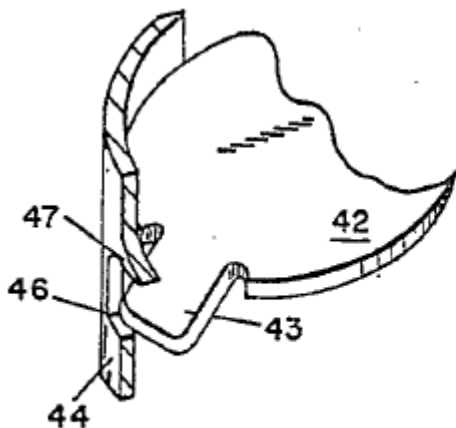


Fig. 5

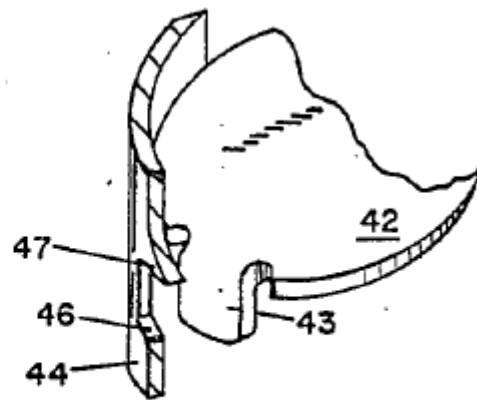


Fig. 5A

*Id.* at .1. And, though the plate 42, deforms at a portion where the tab meets the body of the plate instead of along a diameter as shown in the '120 patent, the location of the deformation is not a limitation of claim 1. Thus, in terms of the first function of the "releasable retaining means" recited in claim 1—the "retaining" function—both embodiments of Dinolfo are quite similar to the release plate 38 of the '120 patent. The plates 13, 42 of Dinolfo utilize tabs which engage slots in the housing of the sonobuoy to keep the sonobuoy's components inside the housing. In regard to the second function of the "releasable retaining means" recited in claim 1, the releasing function, the second embodiment of Dinolfo disengages the sonobuoy housing by deforming in a

way similar to the mode of operation of the release plate 38 of the '120 patent, albeit via a different motive force (water-impact rather than float actuation).

In contrast, the design offered for sale in Sparton's ECP does teach actuation of a release plate by inflation of a float, rather than by water-impact, but does not teach releasing the contents of the sonobuoy by deforming the plate to disengage its tabs. DX-130. The release plate of the ECP design, Mr. DePew's device, is, of course, not structurally similar to the release plate 38 of the '120 patent. However, the Court agrees with Mr. Boyle that the remaining elements of claim 1 are disclosed in the ECP design.<sup>23</sup> Tr. (Boyle) at 3740-42. Thus, all elements of claim 1 are found in the prior art, though not all are disclosed in one reference.

## ii Claim 2

Claim 2 of the '120 patent, which depends from claim 1, further describes the releaseable retaining means as comprising "a deformable substantially flat plate having a periphery, and locking tabs outwardly projecting from said periphery received within openings defined in said casing" and explains that "inflation of said inflatable float means deform[s] said plate and withdraw[s] said tabs from the associated casing openings."<sup>24</sup> JX-1.6. Sparton asserts that neither of these limitations are found in the prior art.

To the extent there are any meaningful differences between the scope of claim 2 and the scope of claim 1, the Court finds that they are, for the most part, found in the prior art. As depicted and discussed above, Dinolfo shows tabs extending outwardly from the periphery of a substantially flat plate to be received into openings defined in the casing, though the tabs are released when a water-impact force deforms the portion of the plate where the tabs meet the body. Conversely, while the ECP device does use float inflation to actuate the release plate, the pressure from the inflating float does not actually deform the plate. Rather, as described above in section (II)(B)(5)(ii), the tabs of Mr. DePew's release plate shown in the ECP are disengaged from the sonobuoy housing when the conical cam is driven upward by inflation of the float, causing the spring-loaded latch plates to slide inwardly. Thus, as the Court found with respect to claim 1, all elements of claim 2 are found in the prior art, but not in a single reference.

## iii Claim 3

Claim 3 states that the deformable plate of claim 2 further "includes a weakened hinge line defined thereon intermediate said locking tabs to facilitate and control deformation of said

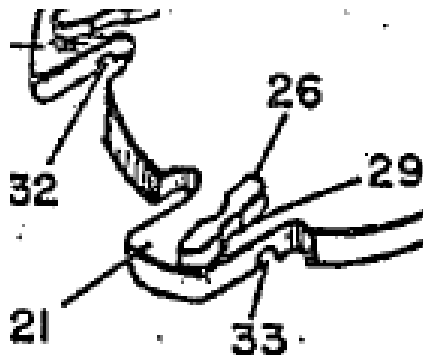
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<sup>23</sup> In addition, though Dinolfo and the ECP are the closest prior art, the Court notes that the patent to Bannister discloses the use of an inflating float to disengage a cap or plate from a canister that has been immersed in water and the patent to Wojciechowski discloses another type of deformable release plate.

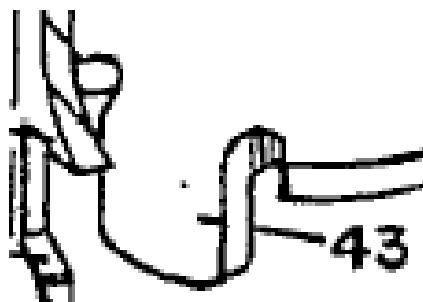
<sup>24</sup> In its Claim Construction Opinion, the Court held that claim 2 recites enough structure that the releasable retaining means recited in that claim should no longer be considered a "means" element under § 112 ¶ 6. *Sparton III*, 68 Fed. Cl. at 42 n.4.

plate.” JX-1.6. Sparton again asserts that the prior art does not disclose any of the recited limitations.

As discussed above, Dinolfo discloses two embodiments. In the first embodiment, plate 13 is formed such that it will actually bend and crack along the portion where the tabs meet the remainder of the body. JX-158.4. Dinolfo explains that grooves or notches 33 are made on the underside of the plate where the tabs 21 meet the remainder of the body to control where the crack occurs. *Id.* (“[N]otch portions [33] establish the weakest points of the disc.”). A close-up view of Figure 3 of Dinolfo is shown below:



*Id.* at .1. Dinolfo does not provide a reference number for the other cut-outs made into the periphery of the disc on either side of the tab, though the Court presumes they must also aid in weakening the plate at the point where the tabs meet the body. Dinolfo discloses that a crack occurs at the area where the tabs meet the body because the plate in the first embodiment is made of cast iron, rather than of another more malleable material. *Id.* at .4. In the second embodiment, the notches 32, 33 are not shown, but the cut-outs into the periphery of the plate on either side of the tabs remain:



*Id.* at .2. Mr. Hudson testified that these cut-outs would weaken the plate at the portion where the bend is shown, causing it to bend there. Tr. (Hudson) at 2327-28. Because the plate in the second embodiment is formed of sheet metal rather than cast iron, it bends completely, instead of cracking, at the point where the cut-outs are made into the plate. JX-158.4.

Thus, Dinolfo discloses two embodiments in which weakened hinge lines are formed on a release plate, though one permits cracking of the plate and one permits a complete bend. However, the weakened hinge lines of both embodiments are located at the intersection of the tabs and the main portion of the plate, instead of being located on the plate between the tabs as

recited in claim 3. Thus, while Dinolfo discloses a very similar type of weakened hinge line arrangement, it does not disclose an arrangement identical to the one recited in the claim. As no other prior art reference identified by the Court is any more similar to the arrangement recited in claim 3 than Dinolfo, the Court finds that the limitations called for in claim 3 are not found, at least identically, in the prior art.

**iv. Claim 4**

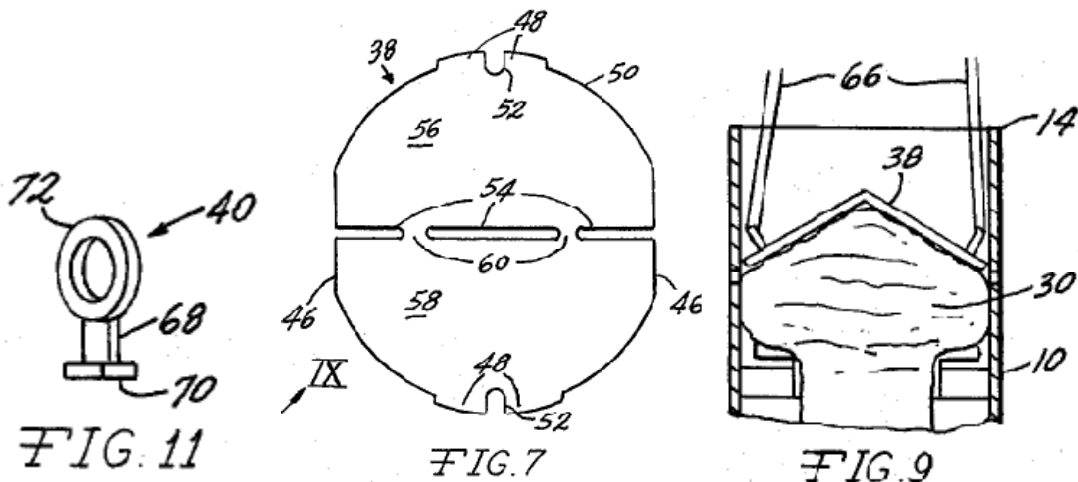
Claim 4 states that the hinge line of claim 3 “comprises at least one elongated opening diametrically defined in said plate” and that “the length of said opening [is] substantially perpendicular to a diameter interconnecting said locking tabs.” JX-1.6-.7. The Court construed this limitation to mean essentially that the elongated opening must be along a line passing through the center of the release plate and must be close to, but not necessarily exactly, perpendicular to the diameter connecting the locking tabs.

The Government concedes, and the Court agrees, that the prior art does not contain a plate having these precise dimensions and arrangements.

**v. Claims 5 & 6**

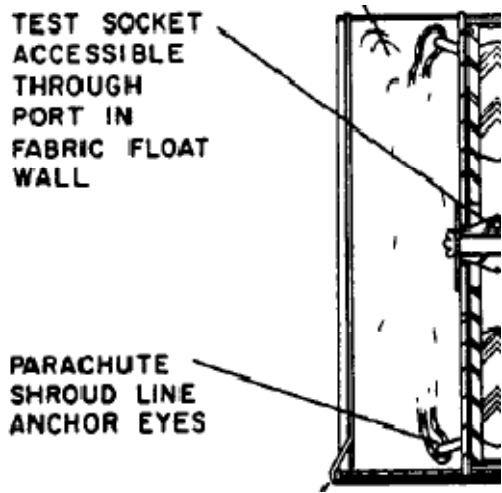
Claim 5 depends from claim 2 and further calls for a “parachute anchor means defined on said plate, and a parachute anchored to said anchor means for retarding the rate of descent of said casing while falling through the atmosphere and released from said casing upon said plate releasing from said casing.” JX-1.7. Claim 6 states that the parachute anchor means is located on the plate, adjacent to the plate periphery and the tabs. *Id.* The Court construed the “parachute anchor means” to be a § 112 ¶ 6 element that corresponds to the slots 52 of the release plate shown in the ‘120 patent. In its posttrial brief, Sparton does not offer its view as to whether the prior art contains a “parachute anchor means.” The Government asserts, however, that the ECP design did include a parachute anchor means as claimed.

The ‘120 patent depicts, in Figure 11, an anchor 40 that consists of an eye 72, neck 68, and head 70. The neck 68 of an anchor is received into each of the slots 52 of the release plate shown in Figure 7, such that the eyes 72 of the anchors protrude upward from the top surface of the plate. The eyes 72 thus provide an attachment point for the parachute shroud lines 66, as shown in Figure 9.



*Id.* at .3.

The layout drawing from the ECP, reproduced below, shows a parachute anchoring arrangement that seems quite similar to that shown in the '120 patent. As can be seen below, the ECP drawing shows a set of eyes secured in some manner to the release plate and a parachute anchored to the eyes, at the point labeled “parachute shroud line anchor eyes”:



DX-130.6. The description of the mechanical design in the ECP confirms that “[t]he drogue chute shroud lines are attached at two points to eyes secured to the release plate” such that when the float inflates, it triggers the release plate and “jettisons both the release plate assembly and the drogue chute” from the housing. *Id.* at .8. The Court therefore finds that the “anchor eyes” shown in the ECP are secured to the release plate through slots in either the same manner as disclosed in the '120 patent or a structurally equivalent manner.<sup>25</sup>

<sup>25</sup> The declaration provided by Mr. DePew does not address precisely how the parachute anchor eyes were attached to the plate. The top view drawing created by Mr. DePew for his declaration depicts two portions of the plate labeled “parachute riser attachment” but does not show the parachute anchor eyes actually attached to the plate. DX-95.108.

### **vii. Claim 7**

Claim 7 is an independent claim that recites primarily the same elements as claim 1 with the addition of a “casing immersion sensing means energizing said inflating means upon said casing being immersed.” JX-1.7. This term was not presented by the parties for interpretation in the Court’s 2005 Claim Construction Ruling. As with many of the other elements in claim 7 (and claim 1), this element is written in means-plus-function form. The recited function is energizing the float inflating means upon sensing that the casing is immersed in water.

The specification of the ‘120 patent states that “[a] salt water activated battery circuit device 35 mounted in the side of the sonobuoy immediately detects submerging of the casing and energizes a circuit energizing the [gas] cylinder 34[, which ] . . . causes the float envelope 30 to very rapidly inflate imposing a pressure on the underside of the release plate 38.” JX-1.5. The ECP clearly utilizes the same or a substantially similar arrangement for triggering the inflation of the float. *See* DX-130.8 (“When the sonobuoy enters the water, the drogue chute remains attached and ensures that the buoy does not go too deep before the float inflates. A squib battery, mounted near a flooding hole, activates and fires the CO<sub>2</sub> float inflation system.”). Therefore, the “salt water activated battery” called for in claim 7 is found in the prior art.

As for the remainder of claim 7, the Court finds that Dinolfo and the ECP offer disclose all the recited limitations, as discussed above with respect to claim 1.

### **vii. Claim 8**

Claim 8 depends from claim 7 and further calls for “a ballast weight mounted upon said casing adjacent said lower end.” JX-1.7. This element is found in the ECP design, which incorporated a “ballast weight” located in the lower end of the sonobuoy to maintain a deep operating depth for the hydrophone. DX-130.3-4.

## **2. The Claims of the ‘233 Patent**

The ‘233 patent contains three claims, all of which are directed specifically to a “retainer plate” for a sonobuoy. As the ‘233 patent is a divisional patent stemming from the same original application as the ‘120 patent, the two patents share the same specification. Thus, the “retainer plate” called for in the claims of the ‘233 patent is, generally speaking, the same design referred to above as the “releasable retaining means,” though the ‘233 patent claims are phrased differently than the ‘120 patent claims.

### **i. Claim 1**

Sparton asserts, in essence, that none of the limitations of claim 1 of the ‘233 patent are found in the prior art. For ease of discussion, the Court will address the limitations of claim 1 of the ‘233 patent individually.



The first limitation called for in claim 1 is “a generally planar body member of deformable material having a generally circular periphery.” JX-3.6. The Government contends that this limitation is met by the patent to Dinolfo. Def.’s Posttrial Br. 15-16, Jan. 9, 2009. Sparton refutes that Dinolfo discloses “a plate having a body member of deformable material,” but does not fully explain why it believes this limitation to be absent from Dinolfo, which clearly depicts a plate that bends. Pl.’s Posttrial Br. 5, Feb. 9, 2009. However, in a previous part of Sparton’s posttrial brief, it states that “[t]he plate 13 [in Figures 2-4 of Dinolfo] is made from cast iron . . . while the plate 42 [of Figures 5 and 5A] is constructed of sheet metal.” *Id.* at 4.

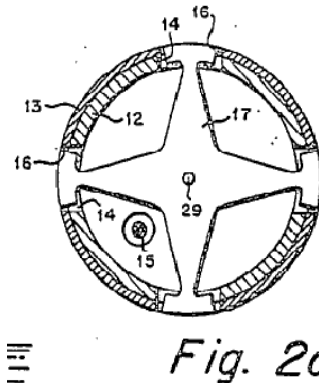
The Court finds that this limitation is met by Dinolfo. As Sparton specifically cited the embodiment of Dinolfo, plate 42, that is made of a deformable material, its argument that Dinolfo does not disclose a plate having a body member of deformable material is meritless.

Claim 1 also recites “a pair of locking tabs *radially* extending from said body periphery located at substantially *diametrically* opposed locations on said body member.” JX-3.6 (emphasis added). In other words, claim 1 describes the orientation of the tabs as extending along radii of the plate and the position of the tabs as being located on the same diameter of the plate. Sparton contends that this limitation is not met by Dinolfo because the tabs of Dinolfo do not “radially extend from [the] periphery” of a plate. Pl.’s Posttrial Br. 18, Feb. 2, 2009. It is difficult to tell from Figures 3 and 4 (the only perspective views) of Dinolfo whether the tabs 19, 21, 22 extend along radii of the plate 13. JX-158.1. At least tab 22 certainly does. *Id.* What Sparton probably meant to argue is that the tabs do not extend along radii from “diametrically opposed locations,” since Figures 3 and 4 of Dinolfo show three tabs spaced about the plate, with no two tabs along the same diameter. This argument, at least, is consistent with the way the Court construed the term “diametrically” in its 2005 Claim Construction Ruling. As interpreted by the Court, “diametrically” refers to a positioning along a line passing through the center of a plate. *Sparton III*, 68 Fed. Cl. at 44.

However, at least three other release plates in the prior art do utilize tabs which radially extend from the plate at diametrically disclosed locations. The patent to Wojecichowski shows a plate 12 having fingers 12a extending all about the periphery of the plate at diametrically opposed locations:



JX-155.1. The patent to Cotilla shows a plate having two pairs of arms that radially extend from diametrically opposed directions:



JX-149.1. And, as shown above in section (II)(B)(5)(ii), the ECP design also has tabs that radially extend from diametrically opposed locations.

Finally, claim 1 calls for a “weakened hinge line” that “control[s] deformation of [the] body member upon a deforming force being applied . . . transverse[ly] to the general plane thereof.” JX-3.6. As discussed above, Dinolfo teaches the use of weakened hinge lines to control bending or cracking of a release plate. However, claim 1 is quite specific that the weakened hinge line of the claimed invention must be comprised of at least one “elongated opening” that is “diametrically defined” on the plate such that it defines “hinge portions of the material” of the plate and that the length of the opening must be “substantially perpendicular to a diameter intersecting [the] locking tabs.” *Id.* The Government concedes, and the Court agrees, the weakened hinge lines in Dinolfo are not arranged in this manner and that no plate in any other prior art reference discloses a plate with this type of weakened hinge line.

Thus, the prior art contains a planar, generally circular plate with weakened hinge lines, and plates that have tabs radially extending from diametrically opposed locations, but no plate that has the specific arrangement and orientations recited in claim 1.

## ii. Claims 2 & 3

Claim 2 depends from claim 1 and further calls for “a pair of parachute anchor receiving slots defined in said body member periphery adjacent said locking tabs.” *Id.* Claim 3 depends from claim 2 and states further that the slots “are defined in [the] locking tabs and intersect the peripheral edge thereof.” *Id.* Sparton simply states in a conclusory manner that the prior art does not contain any of the limitations of either claim.

However, as discussed above, the ECP design does utilize parachute anchor eyes that are attached to the release plate. DX-130.6. Thus, Sparton is wrong in asserting that the prior art does not contain *any* of the limitations in claims 2 or 3. The Court does agree, however, that the anchor eyes used in the ECP design do not appear to be anchored to the plate at the exact position recited in the claims.

### **3. Summarization of the Differences Between the Claims and the Prior Art**

Generally speaking, the differences between Sparton's claimed invention and the prior art sonobuoy designs lie in the specific configuration of the release plate recited in the claims. As conceded by Mr. Boyle, the ECP design discloses all the claimed features of the '120 patent, including the use of the inflating float as an actuation force, with the exception of the deformable release plate. Tr. (Boyle) at 3740-42. Thus, the differences between the claims and the prior art are essentially the same for the '120 and '233 patents, despite the fact that the overall scope of the claims of the two patents differs. While the prior art discloses release plates that deform along weakened hinge lines, release plates with tabs arranged at diametrically opposed locations, and release plates to which parachute anchors can be attached, the prior art does not disclose a plate, such as recited in both the '120 and '233 claims, that (1) bends along a diametrically defined and elongated opening, (2) that is perpendicular to a diametrical line intersecting the tabs or (3) that provides for parachute anchor attachment at the periphery of the tabs.

#### **D. Conclusion on the Issue of Obviousness**

The rather particularized differences between the claimed invention and the prior art do not prevent the Court from concluding that the claims of the '120 and '233 patents are obvious in light of the skill in the art and the design trends and demands existing in the early 1970s. Sparton's argument is, in essence, that none of the prior art references discloses all the claimed elements of the asserted claims and that, even in combination, the prior art references "would not derive the claimed inventions." Pl.'s Posttrial Br. 19, Feb. 9, 2009. By "derive the claimed inventions," it seems that Sparton is arguing that the prior art would not lead one skilled in the art to combine or modify the references to reach the claimed invention. However, as the Supreme Court has explained in *KSR*, while some reason for one skilled in the art to modify the existing art should be shown, such a reason does not need to come from the teachings of the prior art, and, ordinary creativity must be kept in mind. 550 U.S. at 420. As will be discussed below, swapping a deformable water-impact release plate into an upside-down deploying sonobuoy was well within the skill level and creativity in the art, and modifying a deformable plate to deform along a central diameter would have been an obvious design choice.

First, it was generally known in the sonobuoy community in the 1969-1971 era that the Navy desired to have dual depth sonobuoys that could achieve deeper operating depths with a fairly short descent time. Tr. (Boyle) at 3495-98; DX-126.92-.94. Thus, Sparton's ECP design would be an obvious and attractive design to examine, in that its upside-down deployment design allowed for a fast descent time to operating depth.

However, there seemed to be a recurring notion during the presentation of evidence that the DePew release plate included in the ECP sonobuoy was not a particularly good design choice because it used an unnecessarily high number of parts. Tr. (Boyle) at 412, 3461-62, 3523 (The DePew device was never used because it "was a multi-piece part. It was more costly. It didn't fit the need of the design."). One of ordinary skill in the art of sonobuoy design would have been interested in utilizing components and designs that were inexpensive, small, and easy to produce. JX-31.2 (internal Sparton memorandum in which Mr. Widenhofer stated that more

“simplified designs are feasible and should be investigated at this time (a major cost feature).”); Tr. (Boyle) at 830; Tr. (Hudson) at 2279-80 (Navy required specific volumes for its sonobuoys, so miniaturizing components to the extent possible was important.). For example, in August of 1971, Sparton employees discussed using a new type of hydrophone for its dual depth DIFAR design because the new type was smaller. JX-38. Thus, the DePew release plate, as depicted in the ECP, would have been fairly undesirable because it would have taken up more space in the limited volume of the sonobuoy than a single-piece release plate (like the plate disclosed in Dinolfo), as the DePew plate used more parts (e.g., the soft foam ring).

Accordingly, one skilled in the art would have looked to other available release plates in his or her efforts to save space, reduce cost, and simplify the design of a sonobuoy following the ECP design. *Sundance, Inc. v. DeMonte Fabricating Ltd.*, 550 F.3d 1356, 1366-67 (Fed. Cir. 2008) (A combination of prior art is “more likely to be obvious where it ‘simply arranges old elements with each performing the same function it had been known to perform’ and yields no more than one would expect from such an arrangement.” (citations omitted)). Additionally, the Government’s expert, Mr. Hudson, explained that a sonobuoy engineer would consider the means by which a force is supplied to actuate a release plate to be “not significant”; one skilled in the art would have considered release plates designed for water-impact actuation to be possible substitutes for a float-actuated design. Tr. (Hudson) at 2319-21. As an example, Sparton’s Deep DIFAR design utilized the water-impact release plate from the SSQ-50 (the spider plate) with simple modifications as a float-actuated plate. Tr. (Boyle) at 654-56; DX-126.177-.179; DX-141. Similarly, Mr. DePew had originally conceived of his multi-piece release plate for use as a water-impact actuated release plate, but then substituted his multi-piece plate for the spider plate when creating the float-actuated ECP design. DX-237. Thus, it was made clear during trial that one skilled in the art of sonobuoy design would not have hesitated to substitute a release plate designed for water-impact actuation into a sonobuoy that used a float-actuated deployment scheme.

The types of available release plates in the prior art at the time were generally of two types: those that deformed to disengage the tabs or those that were spring-loaded to disengage the tabs. Tr. (Hudson) at 2292-93. The release plates that deformed to disengage tabs would have been a desirable choice, as they generally used fewer parts. *See, e.g.*, JX-158; JX-155. Of the plates that deformed, some bent at the center of the plate to go from a convex to concave position in an “oil-can” movement (e.g., Wojeciechowski, Cotilla) and some used weakened hinge lines created at the perimeter of the plate by forming cut-outs (Dinolfo).

Therefore, the only design step that would be taken to reach the claimed invention from a combination of a deformable release plate and the ECP sonobuoy would be to position the weakened hinge line, tabs, and parachute anchor slots in the particular claimed arrangement. It does not appear that deciding where to place a weakened hinge line, a pair of locking tabs, or parachute anchor slots would have been a particularly difficult task, given the teaching of the prior art and the demands on the size and shape of release plates for Navy sonobuoys. In fact, Sparton was so confident that it would be able to develop a better release plate design for its dual depth DIFAR sonobuoys to replace the spider plate that it submitted its ECP with a 7 ½ month schedule in which to both sea test the design and manufacture 300 units. JX-11.1.

As the Supreme Court has stated, “[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense.” *KSR*, 550 U.S. at 421. In relatively simple technical fields in particular, such as the construction of mechanical release plates, a reason to tinker with modification of known designs is even more easily established if the modification will merely yield a predictable result. *Rothman*, 556 F.3d at 1319 (citing *KSR*, 550 U.S. at 401). The variation of known mechanical designs to achieve an alternative solution to the same problem solved by the known mechanical designs in generally the same manner is obvious, especially where one skilled in the art could easily implement the variation. *Ball Aerosol & Specialty Container, Inc. v. Ltd. Brands, Inc.*, 555 F.3d 984, 992-93 (Fed. Cir. 2009) (Where prior art disclosed designs for doubling a candle cover as a base and for lifting a candle off a surface to prevent scorching, the particular combination of these features was obvious.).

Here, the Court finds that, in an effort to maintain reduced component size and complexity and to provide for ease of production, one skilled in the art would have found it obvious to try using a deformable release plate with a weakened hinge line in a sonobuoy of the ECP design. In pursuing simple modifications of known designs, placing the weakened hinge at or near a center diameter of a release plate would have been one obvious design choice, as doing so would create the greatest bending moment. DX-220.18; Tr. (Hudson) at 2882-83. Even Mr. Boyle confirmed that creating a weakened hinge line in a release plate was within the level of skill in the art as of the critical date (and likely well beforehand). Tr. (Boyle) at 3739. Moreover, varying the known design of Dinolfo to move its hinge line toward the center of the plate also would yield only a predictable result—that the plate would bend at the center rather than near the tabs.<sup>26</sup>

In addition, with a hinge line along one diameter of the plate, arranging the tabs and parachute anchor slots of the release plate to be along a roughly perpendicular diameter also would seem obvious. The plates of Dinolfo, Wojecichowski, and the ECP plate utilized the same or a substantially similar arrangement. Additionally, according to Mr. Hudson, the force or “bending moment” that causes a plate to bend is related to “the distance from the tab” to the hinge line. Tr. (Hudson) at 2883. When the tabs are located at a diameter that is perpendicular to the hinge line, the tabs are at the furthest point along the plate’s periphery from the hinge line. *See, e.g.*, PX-254.45. Thus, a sonobuoy engineer who wanted to create the maximum bending moment would place the tabs at positions diametrically perpendicular to the hinge line, as was generally done in Dinolfo, Wojecichowski, and the ECP. Placing the parachute anchor slots at or near the tabs of the release plate would also be obvious, as that is the point at which the plate is engaged with the housing. *See* DX-130.6; DX-95.101.

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<sup>26</sup> As the Court held above, one skilled in the art would have had a degree in engineering *and* experience in sonobuoy design, and thus readily would have appreciated what the result would be of moving the hinge line. In addition, Mr. Hudson testified that the location of a release plate’s bending would be based largely on “where you have the least material,” or, in other words, at the weakened hinge line. Tr. (Hudson) at 2883.

Moreover, Sparton's own expert testified under oath in regard to his infringement analysis that plates having hinges that were not disposed directly along a diameter of the plate or that had slightly off-center tabs would still perform the same function in the same manner as a plate having its hinges and tabs exactly along perpendicular diameters. Tr. (Boyle) at 320, 846; PX-249; PX-250.112; PX-214.4. Mr. Boyle even opined that release plates with weakened hinge portions that were formed without the use of elongated openings at all would be equivalent. PX-249; Tr. (Boyle) at 353-55; PX-258.122; PX-231.6-7. When a claim recites the combination of known elements with a new addition, and there is evidence suggesting that a substitute for the new addition would perform the same function and would be structurally equivalent to the addition, then the particular substitute can render the combination obvious. *In re Mayne*, 104 F.3d 1339, 1343 (Fed. Cir. 1997). In *In re Mayne*, the Federal Circuit found that a claimed enterokinase recognition sequence that included an arrangement of Phe-Pro-Leu molecules was merely "an obvious functional equivalent" to prior art sequences that included arrangements of Phe-Pro-Ile and Leu-Pro-Leu molecules because the Leu and Ile molecules were structurally equivalent and would be expected by one skilled in the art to be functionally equivalent. *Id.* Thus, the Court found the claims invalid under § 103. *Id.*; accord *In re Dillon*, 919 F.2d 688, 693 (Fed. Cir. 1990) (prior art showing that a tri-orthoester compound was equivalent to the claimed tetra-orthoester compound and that the use of a tri-orthoester as a fuel additive would be expected to produce essentially the same result as using a tetra-orthoester established a prima facie case of obviousness).

Here, Sparton's assertion that release plates having hinge lines and tabs that are not positioned along diameters of the plates infringe makes its asserted claims appear even more obvious in light of Dinolfo and the ECP. The plate in Dinolfo has hinge lines and tabs that are not positioned along diameters of the plate and does not include "elongated" openings to form the hinge line. JX-158.1. However, in the opinion of Mr. Boyle, such a plate would be equivalent to the plate recited in even the most detailed of Sparton's claims. Tr. (Boyle) at 320, 353-55, 846. Thus, as was the case in *In re Mayne*, Sparton's claimed release plate would be merely "an obvious functional equivalent" to the prior art, at least according to Sparton's own expert. Simply put, given Sparton's infringement assertions, the Court finds it difficult to give much credence to Sparton's protestations that one skilled in the art would not have found the details of its release plate design to be obvious, when even Sparton's expert did not find the precise arrangement of its plate to be particularly essential or significant to the function of the plate.

Thus, based on the content of the prior art, the skill in the art, and the design demands of developing sonobuoys for the Navy, the Government has established a strong case of obviousness. The Court will now examine Sparton's arguments concerning evidence of secondary indicia of non-obviousness to determine whether Sparton has rebutted the Government's showing. See *U.S. Envtl. Prods.*, 911 F.2d at 716 (citing *TP Labs., Inc. v. Prof'l Positioners, Inc.*, 724 F.2d 965, 971 (Fed. Cir. 1984) ("Once a defendant demonstrates a *prima facie* [sic] case of [invalidity], the patent holder must 'come forward with convincing evidence to counter that showing.'")).

## E. Evidence of Secondary Indicia of Non-obviousness

Sparton argues that evidence of the following secondary indicia militate against a finding of obviousness: (1) commercial success of the invention, (2) failure of others to solve the problem solved by the invention, (3) copying of the invention, (4) long-felt need in the art for the invention, and (5) praise bestowed on the invention. However, “[f]or objective evidence [of non-obviousness] to be accorded substantial weight, its proponent must establish a nexus between the evidence and the merits of the claimed invention.” *In re GPAC Inc.*, 57 F.3d 1573, 1580 (Fed. Cir. 1995). Moreover, the nexus must link the features of the claimed invention that are not found in the prior art to the asserted secondary considerations. *Asyst Techs., Inc. v. Emtrak, Inc.*, 544 F.3d 1310, 1316 (Fed. Cir. 2008). Thus to be probative of non-obviousness, Sparton’s evidence of secondary indicia must link the specific configuration of its release plate design (i.e., the features of its claimed invention that are not found in the prior art) to the alleged secondary indicia. As will be explained below, Sparton’s evidence of secondary indicia falls far short of establishing a nexus between these indicia and the differences between the claims and the prior art.

### 1. Commercial Success

Sparton begins its argument on commercial success by making the overly simplistic assertion that “a presumption of commercial success” exists because “[t]he claims of the [‘]120 patent are coextensive with Sparton’s product sales.” Pl.’s Posttrial Br. 26, Feb. 9, 2009. Sparton seems to be saying that because the claims of the ‘120 patent have an overall scope that encompasses an entire sonobuoy, the commercial success of the claimed invention must be presumed because Sparton’s sales were also of entire sonobuoys. For this proposition Sparton cites *Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387 (Fed. Cir. 1988). But, *Demaco* dealt with a very simple invention (a new shape of paving stone) which was not a combination of multiple known components with new or modified components, as is the case here. *See id.* at 1389. Thus, when the court found that the claims at issue were coextensive with the products sold, and concluded that this established commercial success, the court did not do so in the context of having to consider the particular contribution of the invention over the prior art and known components. *Id.* at 1392. In fact, the court in *Demaco* did note that “[w]hen the thing that is commercially successful is *not* coextensive with the patented invention—for example, if the patented invention is only a component of a commercially successful machine or process—the patentee must show *prima facie* a legally sufficient relationship between that which is patented and that which is sold.” *Id.* (emphasis added). Thus, the Court does not find that *Demaco* supports the characterization of the law advanced by Sparton. Instead, as the Federal Circuit clarified more recently in *Asyst*, the proper rule on this issue is that “asserted commercial success of the product must be due to the *merits* of the claimed invention *beyond* what was readily available in the prior art.” 544 F.3d at 1316 (quoting *J.T. Eaton & Co. v. Atl. Paste & Glue Co.*, 106 F.3d 1563, 1571 (Fed. Cir. 1997) (emphasis added)).

Sparton also states that “a comparison of the sales of the patented product with the previous model will establish the commercial success of the component,” citing *Vandenberg v.*

*Dairy Equipment Co.*, 740 F.2d 1560 (Fed. Cir. 1984).<sup>27</sup> Pl.’s Posttrial Br. 27, Feb. 9, 2009. However, the court in *Vandenberg* simply noted the patentee’s failure to “show how sales of the patented device compared to sales of their previous model” as an example to illustrate that, overall, the patentee had not established “[a] nexus . . . between the merits of the claimed invention and the evidence of commercial success.” *Vandenberg*, 740 F.2d at 1567. And, the difference between the “previous model” and the “patented device” consisted solely of the patented device’s contribution to the prior art. *Id.* at 1566. Thus, any discrepancy between the patentee’s sales of the “previous model” and the patented model could logically be attributed to the improvement over the prior art. In short, *Vandenberg* essentially stands for the same formulation of the rule stated more clearly in *Asyst*.

Here, it is probable that Sparton’s production model deep depth sonobuoys, eventually designated the SSQ-53(A), were purchased by the Navy because they deployed to a deep depth in a desirably short amount of time. But, these characteristics are not due specifically to the merits of Sparton’s invention over the prior art. For example, other prior sonobuoy models in existence at the time of Sparton’s invention deployed to deep depths in fairly short amounts of time without using an infringing release plate. Tr. (Boyle) at 428, 586-87 (comparing descent time to 1000 feet of the SSQ-41(B) and Sparton’s SSQ-53(A) production model dual depth sonobuoys). For example, the sonobuoy design offered for sale in the ECP also deployed to a deep depth in a desirably short amount of time as well, using an upside-down deployment and a float-actuated release plate different from the claimed generally circular release plate. DX-130.12. Also, the Navy ultimately purchased large quantities of another type of DIFAR sonobuoy from Magnavox that deployed to deep depths that did not infringe Sparton’s claims. Tr. (Boyle) at 425; (Martin) at 1924-26; (McGavock) at 2675. These examples point to the conclusion that the Navy was simply interested in the ability of a sonobuoy to operate at depths that were considerably deeper than 90 feet (the depth of the original SSQ-53 DIFAR sonobuoy), not necessarily any advantages to be found in Sparton’s generally circular, deformable release plate.

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<sup>27</sup> Sparton states the following in regard to its sales before and after its invention was developed:

Sparton was selling the Navy 1600 SSQ-53 sonobuoys, the previous model, for a little over \$1 million. P.2.1-4. After the [dual depth] sonobuoy was developed by Sparton, it sold at least \$40 million [SSQ-53(A) production models] to the Navy since it complied with the specification. P109.12-.14; P177.52-.53.

Pl.’s Posttrial Br. 27, Feb. 9, 2009.

This statement is misleading for a number of reasons. First, as evidence of Sparton’s sales of dual depth sonobuoys, Sparton cites PX-2, a contract with the Navy that calls for sales of the original SSQ-53 for FY 1969 totaling about \$1.06 million as well as sales of the SSQ-53 for FY 1970 totaling about \$6.36 million. Second, the documents cited to show that Sparton sold \$40 million of the production model dual depth sonobuoys are PX-109 and PX-177, both of which were not admitted into evidence.



Considering in particular the fact that the ECP design was in the prior art and that other release plates (such as the Deep DIFAR's spider plate) were known, the Court cannot find that any commercial success of Sparton's dual depth sonobuoys evidenced by its sales data weighs strongly in favor of non-obviousness. Sparton simply has not established a nexus between its sales and the contribution of the claimed invention over the prior art (i.e., a generally circular, deformable release plate).

## 2. Failure of Others

In its posttrial brief, Sparton asserts that two other Navy contractors, Sanders and Hermes Corporation ("Hermes"), were unable to develop a deep depth sonobuoy when issued an ECP under their SSQ-53 production contracts. Pl.'s Posttrial Br. 28, Feb. 9, 2009. As evidence of their failure, Sparton cites (1) JX-75, which is a drawing made by Mr. DePew in 1992 of his multi-piece release plate design (which does not bear in any way on the efforts of Sanders or Hermes) and (2) PX-264, which was not admitted into evidence.<sup>28</sup> In a pretrial brief, Sparton had asserted that it was Magnavox and Sanders (not Sanders and Hermes) that had failed to solve the "deep depth" problem but did not cite to any proposed findings of fact or allude to any testimony or exhibits that would be presented at trial. Pl.'s Am. Proposed Findings of Fact 21-22, Feb. 27, 2008.

After conducting its own review of the record, the Court finds (1) that, to the extent there was any failure on the part of Sparton's competitors, it was not a failure nearly as abject as Sparton asserts and (2) that Sparton has not shown a nexus between any "failure" of its competitors and the merits of its invention over the prior art.

Engineering change proposals were awarded to Magnavox and Sanders, the other two companies supplying SSQ-53 sonobuoys to the Navy, around the same time that the Navy accepted Sparton's ECP. DX-121.38-.39. The Navy's interest in awarding all three ECPs was obtaining a sonobuoy that could deploy to an optional deep depth with the hope that this would produce better submarine detection readings. *Id.* at .18-.19, .38-.39. While it is true that the Navy never approved designs developed by Magnavox or Sanders under their ECPs for full-scale production, it does not appear that Magnavox and Sanders simply failed entirely to develop designs for deep depth sonobuoys. *Id.* at .41. In other words, Sparton incorrectly equates the Navy's decision not to approve a design for full-scale production with a "failure" to develop a design at all.

Based on the testimony of Mr. Graff of the Naval Air Development Center, deep or dual depth sonobuoy prototypes from all three contractors (Sparton, Magnavox, and Sanders) were tested by the fleet. *Id.* at .50. In other words, Mr. Graff recalled that Magnavox and Sanders had

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<sup>28</sup> At one point, the Court indicated to the parties that a list of potentially relevant trial exhibits had not actually been admitted, and that the Court was considering deeming them admitted. Order Regarding Certain Trial Exhibits, July 31, 2009. Sparton objected. However, while objecting to the admission of the Government's exhibits, Sparton argued that its own exhibit should indeed be admitted. In the interest of fairness, the Court ultimately decided not to admit any of the exhibits it had identified.

in fact developed designs for a dual depth sonobuoy. And, he did not recall there being any major difference in detection performance among the three. *Id.* Thus, contrary to Sparton's assertions, it does not seem that Magnavox and Sanders simply failed completely to produce dual depth sonobuoy designs, but rather that they merely failed to produce dual depth sonobuoy designs to the Navy's liking.

Sparton's expert, Mr. Boyle testified that he was aware that the Sanders dual depth sonobuoy design was not ultimately adopted by the Navy for full scale production because the hydrophone used by Sanders was undesirably heavy and performed poorly. Importantly, he did not believe that Sanders' "failure" had anything to do with its deployment system. Tr. (Boyle) at 840. The Magnavox design, on the other hand, used an out-the-bottom deployment approach and only reached a depth of approximately 500 feet. DX-121.60; Tr. (Boyle) at 3699. Yet, the Navy still eventually purchased large quantities of deep depth sonobuoys (SSQ-53B models) from Magnavox after granting a "waiver" of the 1000 feet requirement. Tr. (Boyle) at 425.

Thus, it does not appear that Magnavox actually did fail in its attempt to develop a deep depth sonobuoy, so much as Magnavox simply failed to satisfy the Navy's requirements. And, to the extent it can be said that Sanders failed, Sanders' failed efforts do not establish any nexus between its "failure" and the contribution of Sparton's invention over the prior art.

### **3. Long-felt Need**

In a pretrial brief, Sparton asserted that, as far back as the early 1960s Cold War era, the Navy experienced a need for a sonobuoy that could deploy to a depth deep enough that the hydrophone would be below the oceanic thermocline. Pl.'s Am. Proposed Findings of Fact 99, Feb. 27, 2008. However, in its posttrial brief, Sparton does not raise this argument again.

The only evidence Sparton actually produced at trial that shows that the Navy experienced a need for Sparton's invention was the Navy's indication to its sonobuoy suppliers immediately prior to or contemporaneous with Sparton's Deep DIFAR efforts that the Navy was interested in deploying hydrophones to deeper depth. Tr. (Boyle) at 3495-98; DX-126.92-94. This does not show that the need was "long-felt" or that the need was specific to Sparton's contribution to the prior art. Moreover, there were several other sonobuoys in existence at the time that did reach deep depths, such as Magnavox's SSQ-39 design and another earlier model called the SSQ-41(b). *See* DX-160.125; JX-143.6; Tr. (Boyle) at 427. For example, the SSQ-41(b) was able to deploy to selectable depths of 60, 400, or 1000 feet (i.e., depths similar to those proposed in the ECP). Tr. (Boyle) at 427-28. Thus, if the Navy's need was simply for a sonobuoy that could selectively deploy to approximately 1000 feet (as Sparton asserts), then it would seem that that need had already been satisfied by the SSQ-39 or the SSQ-41(b). *See* JX-143.6; JX-142.238; Tr. (Boyle) at 428-32.

In their testimony, certain witnesses, including Sparton's financial expert, Dr. Donald Martin, and Mr. Boyle, referred to a book entitled *October Fury*, which purports to tell the story of the Navy's efforts to detect Soviet submarines during the Cuban missile crisis and postulates that the Soviet submarines descended to deeper depths to avoid detection. Tr. at 843-44 (Mr. Boyle stating that Sparton's counsel gave him excerpts of that book to review in preparing his

report). The book was offered, but not admitted into evidence, as it was found to be hearsay. Sparton informed the Court that it would call the book's author, Capt. Peter Huchthausen, as a witness, but ultimately did not do so for reasons unknown to the Court. Thus, the Court has been left without any reliable evidence concerning the alleged tactics of Soviet submarines, let alone any evidence concerning whether Sparton's invention would have solved the Navy's alleged problem in detecting the submarines.

#### 4. Copying/Industry Standard

Sparton also argues that the fact that its competitors were shown Sparton's design by the Navy and copied it in order to meet the Navy's performance specifications establishes the non-obviousness of Sparton's invention. In particular, Sparton notes that Raytheon was shown Sparton's design and was told not to "reinvent the wheel," that Rockwell was also shown Sparton's design, and that members of the Navy described Hazeltine's design as a "Chinese copy" of Sparton's design. PX-254.22; PX-204; PX-225.

To be meaningful toward establishing non-obviousness, "more than the mere fact of copying by an accused infringer is needed to make that action significant to a determination of the obviousness issue." *Cable Elec. Prods., Inc. v. Genmark, Inc.*, 770 F.2d 1015, 1028 (Fed. Cir. 1985). The court in *Cable Electric* noted that "copying could have occurred out of a general lack of concern for patent property, in which case it weighs neither for nor against the nonobviousness of a specific patent." *Id.*

Here, the Court finds that there was just this sort of lack of concern for patent rights on the part of the Navy. It seems that it was common Navy practice in 1971 to give production sonobuoy units to all its sonobuoy contractors. *See* Tr. (Boyle) at 397-99, 593, 600, 647-48, 703-09, 3496-97, 3747-49; JX-138. It also appears that, at the time, the Navy would ordinarily have used patent rights clauses in development contracts, such that it would not have believed it improper to exchange these units among its suppliers. 32 C.F.R. § 9.107 (1969). This would, of course, promote efficiency and uniformity for the Navy. In short, the fact that Sparton's design was shown to others and, in some instances, adopted by competitors does not establish that Sparton's design was non-obvious—it merely is evidence that the Navy did not believe its contractors could assert patent infringement claims against it.

Sparton further argues that its design became the "industry standard" and that "[w]hen a patented invention becomes an industry standard, this is compelling evidence of nonobviousness." Pl.'s Posttrial Br. 27, Feb. 9, 2009. For this, Sparton cites *In re Hayes Microcomputer Prods., Inc. Patent Litig.*, 982 F.2d 1527 (Fed. Cir. 1992). However, the only portion of *Hayes* that dealt with industry standards noted that a particular "escape code signal" used in telephonic computer data transmissions eventually became an "industry standard," a fact which contributed to (but did not alone establish) the non-obviousness of the claimed type of modem. *Id.* at 1540. Thus, the actual claimed invention at issue, a modem, was not the industry standard being discussed in *Hayes*. Consequently, Sparton's characterization of the holding in *Hayes* is incorrect.

Additionally, while competitors may have been shown Sparton's design, they were not actually required to duplicate it. Rather, Navy sonobuoy specifications were performance specifications—they did not require specific mechanical designs. Tr. (Boyle) at 598-99; (Martin) at 1233. The fact that the Navy eventually adopted a new sonobuoy classification, SSQ-53(A), after Sparton's ECP work does not mean that the Navy required all suppliers to build a sonobuoy in the precise mechanical configuration used by Sparton. Tr. (Martin) at 1233.

## **5. Summary of Evidence on Secondary Considerations**

As is typical of Sparton's arguments, its attempt to persuade the Court that secondary indicia of non-obviousness exist is conclusory and lacking in substance. Most importantly, Sparton has not sufficiently established that any of its "evidence" actually bears a relationship to the merits of its invention over the prior art.

## **III. Conclusion**

The Court finds that the Government has established, by clear and convincing evidence, that the subject matter called for in the claims of the '120 and '233 patents would have been obvious to one skilled in the art. The patents and the Sparton ECP that the Court found to be prior art contained, identically or equivalently, nearly every limitation of all claims in both patents. Given the relatively high level of education, experience, and knowledge in the sonobuoy art and the requirements and demands associated with meeting the Navy's general requirements for sonobuoys, one skilled in the art would have found the particularities recited in Sparton's claims to be obvious design choices. Sparton's arguments concerning secondary indicia do not rebut this conclusion.

As a result, the Court holds that all claims of the '120 and '233 patents are invalid under 35 U.S.C. § 103. Thus, Sparton no longer has a claim under 28 U.S.C. § 1498, and the Clerk is directed to enter judgment in favor of the Government.

s/ Edward J. Damich  
EDWARD J. DAMICH  
Judge