SLEET, District Judge

I. INTRODUCTION

On August 12, 1999, Creo Products, Inc. ("Creo") filed a declaratory judgment action in which it claimed that two patents belonging to Presstek, Inc. ("Presstek"), United States Patent Nos. 5,163,368 ("the '368 patent") and 5,174,205 ("the '205 patent") are not enforceable and that it does not infringe them. Presstek filed counterclaims on September 22, 1999, and is currently arguing that Creo induced infringement.[1] The court has issued two *Markman* orders construing disputed limitations of asserted claims of the patents at issue (D.I. 64-65) and denied two of Creo's three summary judgment motions in a memorandum opinion (D.I. 146).[2]

The court conducted a five day bench trial from June 25 to June 30, 2001 on the issue of liability.[3] After hearing the evidence at trial, reviewing the record, considering the parties briefs on various issues and their proposed findings of fact and conclusions of law (P.F.F.C.L.), the court finds that both the '368 and '205 patents are valid and that Creo did not induce infringement. Additionally, the court will deny Creo's motion for summary judgment for impermissible claim broadening on the reexamination of the '368 patent (D.I. 92). Pursuant to Federal Rule of Civil

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[1]Presstek's counterclaim originally asserted both contributory and inducing infringement. At trial, however, Presstek withdrew its claim for contributory infringement.

[2]At trial, both parties explicitly reserved their positions asserted at the *Markman* hearing for the record. Additionally, Creo stated that it had a potential license defense for one infringement claim. Since a then-pending arbitration between Presstek and Heidelberg Druckmaschinen AG ("Heidelberg") was to deal with the issue, Creo elected not to pursue the license defense at trial but reserved the right to assert it after the arbitration. Subsequent to the trial, however, Presstek informed the court that it had reached a settlement with Heidelberg and canceled the arbitration. Creo has not informed the court of its intention to assert its license defense at this time. Therefore, the court will not address such a defense but notes that Creo has still preserved it for Heidelberg products.

[3]On December 14, 2001, the court bifurcated the trial into separate liability and damage phases (D.I. 87).

Procedure 52(a), this memorandum opinion contains the court's findings of fact and conclusions of law.[4]

II. FINDINGS OF FACT

A. Background

1. The Parties

Creo is a Canadian corporation having a principle place of business in British Columbia, Canada. In general, Creo manufactures and sells imaging systems with are designed to be installed in printing presses. Presstek is a Delaware corporation with its principal place of business in Hudson, New Hampshire. Presstek also sells equipment for use in on-press imaging. Presstek is the assignee of the '368 and'205 patents.

2. Overview of the Technology

From its inception, the printing press has undergone many changes and improvements. Although technology has made printing faster, cheaper, and more accurate, the underlying concept remains the same. Basically, an image is created on a printing plate with two different surface characteristics. When ink is applied to the printing plate, it attaches to certain areas and is repelled from other areas. When the inked printing plate comes into contact with paper, the image is transferred to the paper. Among the various types of printing processes currently in use, one of the

[4]Pursuant to a scheduling order (D.I. 175) the parties timely filed P.F.F.C.L., objections to the same, motions for certain additional trial exhibits and briefs on legal issues raised at trial. Both parties, however, improperly submitted responses to the other sides' objections without leave of the court (D.I. 188 and 190). The court, therefore, did not review these responses and will strike them from the record. Although the court does not acknowledge or address each and every objection or factual disagreement in its findings of fact, it has examined all of the parties' submissions during its independent review of the record. To the extent the court adopts one parties' view of the facts, it constitutes a rejection of the other parties' view. Further, where a finding of fact is actually a conclusion of law, it shall be treated as such and vice versa.

most common methods is offset lithography. This printing procedure can rely on the mutual repulsion of oil and water. Much like a photographic negative, printing plates (sometimes containing a chemical coating) are exposed to a discharge source so that they have ink receptive (oleophilic) areas and ink repellant (oleophobic) areas. The printing plate is mounted on a cylinder, inked, and the image is transferred to paper.

Color printing is a bit more complicated. To make a color image, the image must first be separated and decomposed into one of the four basic colors – yellow, cyan, magenta or black. After color separation, the portion of the image representing one of the four colors is transferred to one of four printing plates, one for each color. Each printing plate is then loaded onto a different cylinder at one of four print stations. When paper passes each print station, the ink is transferred from the printing plate to the paper. The result is a full color image. One of the major problems associated with color offset lithography is that unless the separately printed colors are precisely aligned and overlaid on the paper, the resulting image will appear distorted or discolored in various ways. This phenomenon is referred to as misregistration or "out of register."

Different types of errors contribute to misregistration of images. Generally, errors can be either uniform (affect the entire image) or non-uniform (affect parts of the image). A non-uniform error happens when there are imperfections on the printing plate itself. Uniform errors occur for various reasons. An axial error may occur when the image from one printing plate is shifted to the left or right vis á vis the image from another plate. An angular offset error may happen when the image from one printing plate is shifted up or down with respect to the image from another plate. A size error may occur when the image from one printing plate is larger or smaller than the image from another plate. A skew error occurs when the image on one plate is "twisted" (i.e., rotated)

relative to an image on another plate. The naked eye is extremely sensitive to these problems; misalignment of an image by as little as one hundredth of an inch results in a visibly distorted image.

Although misregistration can be corrected manually by a skilled press operator, doing so is both expensive and time consuming. Further, although it is possible to manually correct uniform (or linear) errors, it is extremely difficult to manually correct non-uniform errors. Electronic correction is the preferred method since, in addition to being faster and cheaper, it can correct both uniform and non-uniform errors. The key to electronic registration is creating the image directly on the plate on the press, (i.e., applying the images on the plates at the print stations rather than creating them off press and loading them onto the print stations). Using electronics, the image on the plate is created in such a way as to account for the imperfections of the press (both linear and non-linear). Therefore, although the image on the printing plate may be distorted, the resulting image, when transferred to paper, is in register. The patents-in-suit both describe ways to do this.

3. The Patents-in-Suit

a. The '205 Patent

The only independent claims of the '205 patent asserted by Presstek at trial are apparatus claim 11 and the corresponding method claim 23. Since the other asserted claims are dependent on claims 11 and 23, the court will only discuss these two claims.

The claimed invention of the '205 patent requires a "controlling means" that has "the ability to cause corrections to be effected on a point-by-point basis." The court has previously construed the term "controlling means." The function is "producing on the lithographic plate an array of image spots suitable for reproduction." The structure is "a microprocessor, microcontroller, or algorithmic state machine which performs the algorithm of (1) receiving image data, (2) receiving

correction data defining predefined offsets to the image data, and (3) applying the offsets to adjust the timing of the image data, thereby causing the image dots to be created on the printing plate at the desired location."

The court has also already construed the clause which states "such that the discharges occur in response to the image information at selected discrete positions on the printing surface as specified by the image information offset by the correction data." This clause requires the controlling means "to have the ability to cause corrections to be effected on a point-by-point basis." Similarly, with respect to the counterpart method claim, the "controlling" step includes the limitation of requiring "the ability to control the discharges on a point-by-point basis." The '205 patent describes point-by-point correction as independent control of the timing of the discharges from each imaging device in a multi-device writing head.

Both claims 11 and 23 of the '205 patent also include the claim limitation of "a series of axially sequential, circumferential imaging swaths." Under the terms of the court's *Markman* order, this limitation means "a series of image swaths formed sequentially along the axis of the plate cylinder." According to the system disclosed in the '205 patent, the imaging head moves in discrete steps parallel to the axis of the plate cylinder during the imaging process. This limitation was added during prosecution of the patent to overcome a rejection based on the prior art. In a memorandum opinion denying Creo's various motions for summary judgment the court ruled that, during the reexamination of the '205 patent, Presstek explicitly disclaimed the concept of continuous movement of the imaging head with respect to the plate cylinder. *See* Section III.C.2.b.1.b, *infra* (discussing court's previous memorandum opinion regarding doctrine of equivalents).

The court has also construed the clause "controlling the discharges in accordance with said

image, correction, and position information so that the discharges occur at selected positions on the printing surface" as used in claim 23. This clause means "controlling the timing and, therefore, location of the discharges in accordance with image, correction, and position information." Further, this clause, in combination with the clause "correction information specifying offsets to the image information" as used earlier in claim 23, requires the ability to control the discharges "on a point-by-point basis."

b. The '368 Patent

The only independent claim of the '368 patent asserted by Presstek is claim 1. Since all the asserted dependent claims rely on claim 1, the court will only discuss the various contested limitations of claim 1.

According to the court's *Markman* order, the term "discharge source," as used in claim 1, paragraph a, means "a digitally operated and controlled device utilizing lasers, electromagnetic radiation, electron beams, ink-jet, and/or spark discharge technologies for altering the surface of the plate at selected points to form an image." Claim 1 also discloses a printing apparatus containing several print stations. Each print station includes a plate cylinder, at least one discharge source for applying an image to the plate, a means for moving each discharge source relative to the plate cylinder and a means for rotating each cylinder.

To correct for imaging errors, the '368 patent explains that the printing apparatus has a control means that includes a "dot position look-up table for storing the x and y coordinates corresponding to substantially all dot positions on each plate." The '368 patent abstract describes the dot position look-up table as part of the controller: "The controller includes a dot-position look-up table for storing the x and y coordinates of substantially all dot positions on the plate." The dot

position look-up table is created during the calibration step that is "performed only once at the factory during the final check-out phase of press manufacture" and is stored "as the pedigree for each of the print stations." The '368 patent also describes the dot position look-up table as containing the dot pattern of each plate cylinder so that the locations of all dot positions of each plate are known.

As the court has already stated, the control means also includes a "means for actuating said discharge source to form image dots at selected ones of said dot positions when said electronic signals are present." The court's *Markman* order defined the limitation "means for actuating," as used in claim 1, paragraph c.ii. The function is "actuating the discharge source to form image dots at selected dot positions when electronic signals representing an original document are present." The structure is "a computer or controller associated with the discharge source that simultaneously supplies an image signal and a dot-position to the writing head." The dot position, which is supplied to the writing head, is the correction data that is obtained from the dot position look-up table.

Claim 1 of the '368 patent also includes a limitation requiring a discharge source. The control means repeatedly actuates the discharge source momentarily based on various inputs. To describe the controller for the spark discharge source, the '368 patent refers back to the '205 patent. This spark discharge controller "repeatedly actuates each discharge source momentarily" for each dot.

Although the '205 and '368 patents both teach corrections in both the axial (or x) direction and circumferential (or y) direction, both patent specifications describe corrections which are made in the circumferential direction (i.e., around the cylinder). The patents-in-suit do not, however, exclude the possibility of other corrections. For example, claim 1 of the '368 patent corrects for angular inconsistencies and alters the length of the image scan, both in the circumferential direction.

4. The Accused Products

In 1997, Creo began developing an on-press imaging system (the "DOP System") for use in a printing press. Portions of the hardware and software used in the DOP System were modified from a previous Creo system called Computer-to-Plate. The DOP System is comprised of several electronic components that interact with each other and with other mechanical press components to permit the imaging of printing plates on press in such a way as to correct for many of the above described imaging errors.

Creo does not incorporate its DOP System into its own printing presses. Rather, Creo sells the DOP System as a kit to other printing press manufacturers. The DOP System is used on the SpeedMaster SM 74 DI (the "SM 74 DI") which is manufactured, offered for sale, and sold by Heidelberg. The parties dispute whether the SM 74 DI has been or is currently in use in the United States. To support its contention that the SM 74 DI is in use in the United States, Presstek relies entirely on the deposition testimony of Bradley Palmer, an employee of Creo and a former manager of the DOP System.[5] Given the importance of the issue, the court will repeat the relevant portion of the deposition:

Q: Do you know where the Heidelberg DOP presses are installed?

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[5]Presstek has properly offered, and the court has admitted, portions of Bradley's deposition into evidence via a deposition designation. The portions of Bradley's deposition upon which Presstek relies to support its position in its P.F.F.C.L., however, include portions of the deposition not previously designated. *Compare* Pre-Trial Order, Ex. M, at 6 (designating Palmer Dep. at 74:20-74:19), *with* Def. P.F.F.C.L., at 3 ¶ 5 (citing Palmer Dep. at 74:20-:75:24). Although Creo counter-designated the relevant portions of Bradley's deposition testimony, it did not do so for portions of his testimony upon which it relies in its objection to Presstek's P.F.F.C.L.. *Compare* Pre-Trial Order, Ex. M, (counter-designating Palmer Dep with 80:3-14 and 80:24-81:9), *with* Pl. Obj. To Def. P.F.F.C.L., at 3 (citing Palmer Dep. at 75:21-34). Given both parties' improper reliance on portions of Palmer's deposition, the court will not consider lines 75:21-24 in deciding the issues raised.

A: We know where they are by country, yes.
Q: Do you have a list of the [amp] users?
A: No, we don't.
Q: How many are there in the United States?
A: I believe there's approximately six presses in the United States.
Q: Do you have any more information on where they are located?
A: *Yeah. I know from meeting people or public sources where one or two of them are*.
Q: And where are they?
A: There's one in Maryland. There's another at a company called Photo Effects, which is in the Eastern U.S. somewhere. I believe there was one that is [sic] recently installed in Nevada. I may have heard of others but I don't recall the specifics at this time.
Q: Do you know if one is installed in Minnesota?
A: Yes. There is one in Minnesota.
Q: Do you know if there is one installed in Delaware?
A: I believe that may be the Photo Effects one.

Palmer Dep. at 74:20-75:19 (emphasis added). Creo argues that Bradley's knowledge regarding the existence and use of the SM 74 DI in the United States is based on hearsay. Creo also argues that Presstek has not established that the SM 74 DI was in operation in the United States since at least September, 1999.

Having considered the record and Creo's arguments, the court concludes that Palmer's statement at the deposition does not stand for the proposition for which it was cited by Presstek. First, there is nothing in the record about the specific timing of the installation of any presses (either in September, 1999 or thereafter).[6] Second, Bradley's knowledge of the SM 74 DI is not well explained. Palmer states that there are six SM 74 DI presses in the United States. His knowledge

[6]The court notes that the proceeding lines of the deposition lend some support to Presstek's statement that the SM 74 DI began being shipped in September, 1999. *See* Palmer Dep. at 74:15-19. Presstek, however, neither identified this testimony in its deposition designations no relied on it in its P.P.F.C.L. As a result such a statement is not part of the record. Moreover, even if the court were to consider the testimony, Palmer merely states that Heidelberg began shipments in "the late summer of 1999" – there is nothing to indicate that these shipments were to the United States.

of "one or two of them" is based entirely on "meeting people or public sources." This statement is classic hearsay since it (1) is being offered for the truth of the matter, (2) relies on out of court statements and documents not in the record, and (3) there is no recognized exception to the hearsay prohibition.[7] As to the other three or four SM 74 DI presses, Palmer offers no explanation as to how he knows where in the United States the machines are located. Indeed, he admits that he does not have a list of users of the press. Even giving Presstek the benefit of the doubt – that he learned about the presses from "meeting people or public sources" – this information is still hearsay for the above mentioned reasons. Thus, the court finds that the record does not contain any evidence that the SM 74 DI was made, used, or sold in the United States in September, 1999 or thereafter.[8]

The DOP System is also used in the Komori Project D Press (the "Komori Press") which is manufactured by Komori Corporation ("Komori"). The Komori press is the result of a joint development effort by Creo and Komori, and it is uncontested that the press exists. At trial, there was a dispute over whether the Komori Press has been offered for sale in the United States. Similarly, there was no evidence presented at trial, either through live testimony or by deposition

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[7]*See* Fed. R. Evid. 801(c) ("'Hearsay' is a statement, other than one made by the declarant while testifying at the trial or hearing, offered to prove the truth of the matter asserted."). Even if Presstek had argued Bradley's assertion was from a party opponent, there is absolutely no basis upon which the court could draw such a conclusion since the "people" upon which Palmer relies are unnamed or unidentified. There is no recognized exception to the application of the hearsay exclusion in this case. *See* Fed. R. Evid. 803

[8]The court has combed the record and has not found any other testimony (or deposition designation) regarding use or sale of the SM 74 DI. Not only has Presstek failed to point to any other evidence in the record, but in his opening Presstek's attorney stated, "[the] SM 74 DI . . . has been sold in the United States. In fact, there's one operating in the State of Delaware, and I don't think that's in dispute. It's in the depositions that are already marked . . . ." *See* Tr. 6/25/01 at 52:1-5. Since the Palmer deposition designation is the only explicit reference to the SM 74 DI operating in Delaware, the court believes that this statement is the deposition designation to which Presstek's attorney referred.

designations, that the Komori Press has been sold or is currently in operation in the United States. There is similarly no evidence in the record that the Komori Press is currently in use in the United States. Rather, the Komori Press was shown at a printing industry trade show in Chicago, Illinois in 2000.[9] Prior to the trade show, Creo was aware that Komori's goal was to show the Komori Press at the show and that the "Demonstration Press" was in Chicago one month before a trade show.[10]

a. Imaging in the DOP System

The DOP System is connected to a computer. The computer, although not part of the DOP System, is called the Creo Data Node Interface (CDI). The CDI contains software provided by Creo (the "service shell"). The service shell is a graphical user interface which allows the user to enter five offset parameters to register images on the printing plates (main scan shift, sub scan shift, main scan scale, sub scan scale and track rotation). A sub scan shift relates to the placement of pixels (the smallest element of a picture) along the length of the printing plate (the axial or x-direction). Main scan shifts are movements of the image around the circumference of the printing plate (circumferential or y-direction). Track rotation rotates the axis of the image to compensate for the orientation of the track on which the imaging head moves. These geometric correction parameters are used to register images on the printing plates. The image corrections must be uniform since the

[9]Since the question of whether showing the Komori Press at a trade show is enough for infringement is a question of law, the court will address it elsewhere in this memorandum opinion. *See* Section III.C.1, *infra*.

[10]When asked whether the Komori Press was in Chicago for a trade show, Palmer replied that it "seem[ed] like a reasonable guess" but that he did not know it to be absolutely true. Unlike the dispute over the SM 74 DI, Creo's position that it did not know the Komori Press was to be shown at the Chicago trade show is unnecessarily splitting hairs. The record demonstrates that (1) Creo and Komori worked closely on the Komori Press, (2) Creo knew Komori wanted to show the press at a specific trade show in Chicago, and (3) Creo knew that the press was in Chicago one month before the trade show.

DOP System cannot (1) independently control a point or pixel in the image, (2) affect individual points, or (3) perform non-uniform corrections.

The first step in imaging with the DOP System is to send a file of the image to be printed from the CDI to the raster image processor (RIP), located in the Data Node Electronics (DNE). The RIP then breaks the image down into pixels and builds a image for each color. Each image corresponding to a color is saved as a "bitmap" for use in imaging a separate plate on a separate print station. The image bitmap is then stored on a hard disk in the DNE. To account for the fact that the DOP System creates an image on a plate rotating on a cylinder, each bitmap image undergoes an orthogonality/corner turning process. This is done so that the imaging head can create a series of "swaths" on the printing plated. The bitmap is stored in the DNE until the imaging process begins.

The DOP System determines when to begin imaging based on its geometric correction parameters (which are entered into the service shell located in the CDI). Upon reaching the appropriate spot on the plate, the CDI commands that the image bitmap information be read out of the DNE and sent to a 128 byte first in/first out (FIFO) memory located on the Image Control Electronics (ICE) board. Each print station has its own ICE board. As the image data is read out of the FIFO to the imaging head, new information is sent from the DNE to the FIFO memory. Thus, image information is not stored in the FIFO – it is in memory for an instant before being fed to the imaging head.

The DOP System also includes a center frequency calculation (CFC) to maintain uniform spacing of the pixels regardless of speed changes of the cylinder. The DOP System computes a CFC by analyzing the current speed of the cylinder and the acceleration or deceleration of the drum at a given moment, comparing it to data from the previous drum rotation, and then estimating how fast

the drum will be moving during the next few clock pulses. Since the CFC is based on present speeds and future estimations, it is not entirely based on entry by an operator, nor does it constitute predetermined data.[11] Since it is merely a timing clock based on present and estimated drum speed, the CFC does not make any non-linear corrections, is not affected by non-uniformities on the plate cylinder, and does not correct on a point-by-point basis. The CFC is updated a fixed number of times during imaging. For example, in the SM 74 DI (the Heidelberg system), the CFC is adjusted 256 times per cylinder rotation – once every 0.1 inches of rotation. Further, there are approximately 240 strokes, corresponding to 50,000 points affected by each CFC.

b. The DOP System's Imaging Head

The DOP System has a Thermal Exposure Head (TEH) at each print station. The TEH contains a circuit board with microprocessors which manipulate information from the DOP System to produce the image on the printing plate. The discharge source in the TEH is a laser diode and a light valve with up to 240 separate laser channels or beams. The laser remains on throughout the entire imaging process and the light valve channels – which are parallel to the cylinder axis – either

[11]Presstek asserts that since this process is conducted by comparing the past and present speed of the cylinder with a value that is entered in to the service shell, it is, therefore, based on predefined parameters. As evidence, it points to portions of documentation on the DOP System contained in the record. Although it may be true that a user can enter a value in the service shell which may effect the CFC, such a value does not change while the system is operating and is not the only, or even the primary, determinant of the CFC. Rather the CFC constantly changes depending on the speed of the current and the prior drum rotation. Even if values entered in the service shell play a role, it is merely in the *estimation* of (not the actual) future drum speed. Therefore, the CFC is driven by the speed of the drum rather than some predefined parameter.

open or close to allow laser light to pass through to the printing plate.[12]

Depending on the image to be produced, each pixel is either "on" or "off." If a pixel is on (a digital "1"), the corresponding channel in the light valve will open, the laser beam will pass through it, and image a pixel on the printing plate. Correspondingly, if the pixel is off (a digital "0"), the corresponding channel will close and the laser beam will not image a pixel on the printing plate. This process results in the image being "painted" onto the printing plate as a series of lines (not discrete dots). Although each pixel may be either on or off, the position of each channel relative to each other remains fixed; the position of a pixel cannot be varied independently on any other pixel on the plate. Consequently, the DOP System cannot perform non-linear (i.e., non-uniform) corrections that result from variations between pixels or a group of pixels.

The DOP System reads the groups of pixels out of the FIFO in groups of up to 240 pixels at a time. This group of pixels is referred to as a "stroke." The "stroke clock" determines when a stroke of information is imaged on the printing plate. Each pulse of the stroke clock loads one stroke into the light valve. The TEH sits on a track that moves continuously along the length of the plate cylinder (the axial direction). Since the plate cylinder is continuously rotating, the image created traces a helical path around the plate cylinder. The DOP System refers to the helical image created in one rotation of the plate cylinder as a "swath." If a printing plate is removed from a plate cylinder and laid flat, each swath on the plate is angled.

B. Validity

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[12]The light channels never completely close. Even when a valve is in the "close" position some laser light still passes through. Although the amount of laser light hitting the printing plate through the closed valve may not be enough to create an image spot, there is a measurable amount of laser light hitting the plate at all times.

Creo has asserted that the '205 and'368 patents are invalid because they are obvious, violate the on-sale bar, and do not disclose the best mode.[13] Below are the court's findings of fact on each of these issues.

1. Obviousness

Creo has asserted that the '368 and '205 patents are invalid as obvious. At trial, Creo's expert conceded that the '368 patent and various claims in the '205 patent are not anticipated under 35 U.S.C. § 102. Yet, Creo's expert concluded that the patents-in-suit should be considered obvious in light of a combination of references. Creo seeks to rely on two alleged prior art references to support its claim of obviousness. One reference is U.S. Patent No. 4,911,075 (the "Lewis '075 patent"). The Lewis '075 patent is one of Presstek's first patents and covers its plate technology. The Lewis '075 patent was cited during prosecution of both the '368 and '205 patents. There is no evidence to suggest that, during reexamination, the Examiner failed to consider the Lewis '075 patent as prior art.[14] Indeed, the P.T.O. regulations on prior art required the Examiner to do so.

The other reference relied upon by Creo was an alleged sale or use of the Optrotech Image

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[13]Creo folds its discussion of obviousness into its discussion of the on-sale bar. Although it is true that a finding of obviousness may also result in a violation of the on-sale bar, the court will address the issues separately since the issues are not co-extensive; there are other alleged violations of the on-sale bar in addition to obviousness.

[14]Creo points out that the Lewis '075 patent is not listed as one of the "References Cited" on the face of the '368 patent Reexamination Certificate. Although the parties argue about whether the Patent & Trademark Office (P.T.O.) Examiner actually looked at the Lewis '075 patent during the '368 reexamination, there is no dispute that the Lewis '075 patent was examined during the original prosecution of the '368 and '205 patents and the reexamination of the '205 patent. As for the '368 patent reexamination, the court believes that the record – including the'368 patent file wrapper, the P.T.O. procedures, and the testimony by various witnesses – demonstrates that the P.T.O. Examiner reviewed the Lewis '075 patent during the '368 reexamination.

5008 (the "Image 5008"), a printed circuit board film setter, prior to January 9, 1990. There is no documentary evidence in the record which describes the design, structure, or operation of the Image 5008. Rather, the only evidence which suggests that the Image 5008 was on sale, sold, or used in the United States is the testimony of Daniel Gelbart, President of Creo. Gelbart testified the product was made in Israel using Creo components made in Canada. Gelbart stated that the Image 5008 was in operation at various locations in the United States in 1989. He also stated that an Optrotech technician was stationed at Creo to do service calls in the United States and that he would assist in such service calls. Creo does not, however, have any sales documents, import/export documents, invoices, shipping records or other documents of any sort in the record to substantiate any such sale in the United States. According to Gelbart, these types of documents should exist some place. His only memory of documentation was seeing an operator manual many years ago but he does not possess a copy.

The trial testimony revealed that initial demonstration of the Heidelberg GTO-DI (the "GTO-DI"), the first press to incorporate the inventions in the '205 and'368 patents, was at the Print '91 trade show in Chicago in September, 1991. The GTO-DI was very well received by representatives of the printing industry at the trade show. Indeed, the GTO-DI was demonstrated to a "packed house" and there was so much interest that additional stands were erected to permit people to stand behind those seated to view the press demonstration. The Heidelberg QuickMaster 46 DI, which also incorporated the inventions of the '205 and '368 patents, was likewise well received when it was demonstrated at the DRUPA trade show in 1995.

Creo's own documents provide laudatory comments about the GTO-DI and QuickMaster 46 DI presses. United States Patent No. 5,713,287, owned by Creo and naming Gelbart as the inventor

(the "Creo '287 patent"), states that a major advantage of the GTO-DI press compared to presses using plates made off-press is much better registration between printing units when printing color images. This is precisely the function of the patents-in-suit. The Creo '287 patent states that the GTO-DI press eliminates inefficient and expensive bottle-necks in printing operations associated with using plates that are made off-press. Further, Creo's own marketing documents state that the QuickMaster 46 DI is a "huge success." Finally, Creo – through its CreoScitex division[15] – has a royalty bearing license under the patents-in-suit for the manufacture and sale of its imaging system used on its 74 Karat press. In addition to the license to CreoScitex, the inventions covered by the patents-in-suit have also been licensed to third-party press manufacturers including Heidelberg, Adast, and Ryobi.

2. On-Sale Bar

a. Presstek's Technology

Presstek's first device for imaging plate material was a handheld device with a spark discharge needle which was manually moved over the surface of the plate material as a way to test the effect of sparks on different configurations of materials to form the plates. The second device was a small wheel on which spark images were deposited by a single electrode on a thin strip of plate material. In mid-1988, Presstek created an imaging head which had multiple spark discharge needles and began assembling a "feasibility press" configured with a central impression cylinder for the purpose of continuing its feasibility tests.[16]

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[15]At the time of the license, Scitex was a separate company. Creo and Scitex subsequently merged and the result was a division of Creo called CreoScitex.

[16]Creo argues that since this press was previously referred to as a "central impression cylinder press" or a "satellite press," the term "feasibility press" is misleading. After reviewing

The feasibility press was assembled by Presstek from parts taken from used printing presses and pieces built in the Presstek laboratory. The feasibility press was never designed as a product nor intended as a product in itself. Instead, it was created as an experimental device (albeit more sophisticated than the prior handheld device) to image Presstek's continually evolving printing plate designs.[17] According to the trial testimony, the "main purpose" of the feasibility press was to test and finalize the development of the imaging system and a printing plate. Presstek only made one feasibility press which was used to generate test images on the variety of printing plate materials with which Presstek was experimenting. The feasibility press is still in Presstek's laboratory today.

At no time during 1988 or 1989 did the feasibility press include all the imaging systems or controls which are described and claimed in the '205 or '368 patents.[18] Creo's argument regarding

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the record, the court disagrees since a mere semantic difference does not change the press' capabilities and the purpose for which it was designed. The court will, therefore, refer to the press as a "feasibility press" throughout this memorandum opinion.

[17]As it did in its motion for summary judgment, Creo emphasizes that Presstek mentioned the feasibility press in a filing with the Securities and Exchange Commission (S.E.C.). Although this may be true, it is beside the point. The S.E.C. Form S-18 Registration Statement (the "Registration Statement") captured what Presstek, at that time, anticipated would happen when it "complet[ed]" its system. This in no way undercuts the court's finding that the feasibility press was neither designed to be a product nor intended to be a stand alone product. Rather, the evidence shows that the feasibility press was, at most, a preliminary step in the research and development of a different, more complicated, and future product.

[18]Creo offers various deposition designations from Presstek employees who were involved in designing the feasibility press. The testimony arguably shows that at various times the feasibility press may have included some of imaging systems and controls of the patents-in-suit. Yet, the deposition designations are vague or silent as to the timing and inclusion of these aspects of the feasibility press. The record shows that the feasibility press was constantly changing and being upgraded. Indeed, Creo has not pointed to a specific date in which the feasibility press included all the limitations of the patents-in-suit. At trial, Dick Williams and Frank Pensavecchia (two Presstek employees) specifically testified about the problems associated with the feasibility press and the techniques used to combat them. Indeed, several important changes "were not totally in the press even by the time of the September [1991]" trade show at

the disclosures of U.S. Patent No. 4,936,211 ("the '211 patent") does not demonstrate that Presstek was aware of what controls and corrections the '205 and '368 patents would ultimately claim. Rather, the poor gearing of the feasibility press made it too imprecise. The feasibility press did not have individual encoders on individual plate cylinders; it had a single magnetic encoder on the central impression cylinder. Since the central impression cylinder was geared to the plate cylinders, there was only one reading indicating the expected position of all the plate cylinders from this one central source.

The feasibility press was unable to do several things required by the '205 and '368 patents. The presence of one magnetic encoder on the feasibility press did not provide sufficient individual information to determine angular inconsistencies among the plate cylinders or for making angular adjustments among the cylinders to bring the images into register. On the contrary, image adjustments in the circumferential direction done on the press were done manually and mechanically. The angular inconsistencies among the cylinders on the press were also corrected by mechanically adjusting the cylinders as in a conventional press. Further, the feasibility press had no ability to change the size of the image in the circumferential direction to achieve registration. In this sense, the feasibility press (and the imaging for that press) was not a commercially saleable product.

b. Potential Development Partners

At trial, Creo asserted that two business relationships between Presstek and potential joint development partners violate the on-sale bar. The court, however, finds that Presstek did not offer to sell any product incorporating all the inventions of the '368 and '205 patents prior to January 9,

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which the GTO-DI was exhibited. Given this, the court finds that at no time during 1988 or 1989 did the feasibility press contain all the imaging systems or controls contained in the patents-in-suit.

1990 (the "critical on sale bar date"). The court will discuss these associations in turn.

(1) Multigraphics

In late 1988, Presstek sought a partner or partners who would be willing to devote resources to the joint development of a press with on-press imaging; it was not trying to sell a press or imaging equipment. Every potential development partner was required to sign a very stringent Non-Disclosure Agreement so that whatever Presstek did with such companies remained secret and confidential and could not be published, disclosed, or used by them. Presstek entered into such an agreement with Multigraphics. In November, 1988 the parties began discussions to jointly develop the Presstek system. While Multigraphics was interested in the concept, it ultimately decided not to proceed with Presstek. As a result, the development agreement with Multigraphics terminated and no business or sale was ever consummated.[19]

In late January or early February, 1989, Presstek signed a series of letters with Multigraphics laying out a proposed business relationship between the parties.[20] As part of the business relationship, Presstek hoped to supply its imaging systems to Multigraphics for incorporation into

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[19]The evidence Creo proffered in its summary judgment motion did not demonstrate by "clear and convincing evidence" that Presstek and Multigraphics did development work together for a Multigraphics press which included Presstek technology. *See Creo v. Presstek*, Civ.A.No. 99-525-GMS, 2001 WL 637397, at *2 (D. Del. May 11, 2001). At trial, there was some confusion over the documents associated with the agreement between Multigraphics and Presstek. The court afforded Creo an opportunity to re-cross examine a Presstek witness. Creo declined the offer. Additionally, the court allowed both parties to submit additional trial exhibits on this issue and discuss their implications in their post-trial briefs. Both parties did so. The court has reviewed the new trial exhibits.

[20]The record contains three letters dated January 31, 1989. One letter, PTX 102, describes the sale of Multigraphics press subassemblies and parts to Presstek. The court will discuss this letter elsewhere in this memorandum opinion. *See* note 23, *infra*. The other two letters, PTX 101 and 103, appear to be identical. The court's discussion of the "letter" refers to PTX 101 and 103 to the extent they are the same.

Multigraphics' one and two color Eagle Presses. According to the terms of the letter, Presstek agreed to furnish Multigraphics with an imaging system for such one and two color presses. The letter explicitly states that the imaging system is to be further described in specifically referenced exhibits. None were attached to the letter. Other than a Confidentiality Agreement, no such exhibits were otherwise created.[21] The state of the letter agreement with Multigraphics was summarized in the Registration Statement for Presstek's public offering of stock in 1989 as follows:

> The Company has entered into an agreement with Multigraphics pursuant to which it will furnish Multigraphics with the Prepress System and the Direct Imaging System, integrate such systems into Multigraphics' line of one and two color Eagle presses and license Multigraphics to use the associated proprietary software in such modified Eagle Presses at prices and on terms which the parties have agreed to negotiate and use their best efforts to complete as soon as the relevant information becomes available.

The Registration Statement also makes clear that:

> There can be no assurance that development of the Presstek Printing System will be successfully completed, that it will satisfactorily perform all of the functions for which it has been designed or that it will meet current price/performance objectives.

As stated above, the definition of what would be supplied and all the actual significant terms and conditions of a potential agreement were never determined. Specifications, pricing, and other schedules for the agreement were never prepared.

Further, the development proposed in the January, 1989 letter does not appear to encompass the color image printing system Presstek later invented, disclosed, and claimed in the '368 and '205

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[21]Creo argues that the letter "speak[s] for itself" regarding the specifications and prices of the Presstek system. The court agrees with the statement, but not the sentiment. As it discussed in its previous memorandum opinion, the letter states that the specifics of the Presstek system are further described in various attached exhibits. The exhibits attached to the copy of the letter provided the court on summary judgment, however, were blank. *See Creo*, 2001 WL 637397, at *2. The letter offered at trial is even more bereft; there are no exhibits (blank or otherwise) attached to it.

patents.[22] Rather, a one-color Eagle press would print one color only, normally black. In a one-color press, there is only a single plate cylinder and a single plate; there is no need or use for control systems of the type in the '368 and '205 patents. Similarly, a two-color press is a "spot color" press; it is designed for printing black text with, for example, a one colored border or logo. In such a press, the dimensional factors corrected by the '368 and '205 patent inventions for color images have no applicability.

The companion January 31, 1989 letter (PTX 102),[23] which proposed that Multigraphics would supply Presstek with parts and components from its Eagle press for Presstek to develop a four-color press with on-press imaging of its own, was also never consummated. The schedules referred to in that agreement were never created. In any case, such a transaction would have involved only Presstek's purchase of parts and components from a vendor, under a strict Confidentiality Agreement, for its own internal development of a four-color press.

(2) Heidelberg

In the fall of 1989, Presstek did a demonstration of its feasibility press for a representative of Heidelberg. After the demonstration, Presstek entered into a strict Confidentiality Agreement

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[22]Creo points to a memorandum written by Pensavecchia regarding a trip to Multigraphics. Pensavecchia describes a yet-to-be marketed "Tandum Eagle" press which could do "One Color, Spot Color Dual Tone [or] Four Color." Although this may be true, Creo has failed to establish that (1) this press is contemplated in the January, 1989 letter and (2) the Presstek technology which existed at the time could adequately do more than one color or spot color. Indeed, the court has already discussed the registration problems Presstek faced at this time. More accurately, the agreement between the parties appears to contemplate a future press with the ability to image four colors when the technology became available. In the meantime, however, the parties agreed to work to create a one or two color press with Presstek's imaging system.

[23]*See* note 20, *supra*.

with Heidelberg and agreed to do a demonstration of Presstek's plates and spark discharge energy for Heidelberg in Germany. Williams and four other Presstek engineers traveled to Germany to demonstrate Presstek's plate and imaging technology to Heidelberg. In advance of this trip, Presstek shipped to Germany a laboratory fixture designed to image plates. That fixture was a single imaging device with a single plate cylinder, which could image Presstek's specially prepared plates for testing. Not only was it not a printing press, it was neither sold nor leased to Heidelberg. The Presstek engineering team spent approximately three weeks at Heidelberg. Upon completion of the demonstration, the fixture was shipped back to Presstek.

In early 1990, Presstek began developing a press for Heidelberg embodying Presstek's imaging technology. In late spring of 1990, Heidelberg sent Presstek a five color GTO press. Unlike the feasibility press, the GTO press was a commercial product with commercially acceptable print quality. During this time, Presstek converted the GTO press into an on-line Direct Imaging press (which became the GTO-DI). Several of the aspects of the claimed invention were not incorporated into the GTO press until this time. The GTO-DI was shown to the public for the first time at Print '91 in September, 1991. This marked the first time a product embodying the '368 and '205 patents was ever offered for sale.

3. Best Mode

There is no evidence on the record that Presstek withheld the best mode of practicing the claimed inventions of the patents-in-suit. Both Williams and Pensavecchia testified that the inventions of the '205 and '368 patents were not incorporated in the feasibility press. The court finds the testimony of both witnesses to be credible and trustworthy. Williams did not personally design the feasibility press. At the time, however, he was the chief operating officer who oversaw the

technical developments of the engineering and design teams. Although he may not have been intimately familiar with the details of the feasibility press, he had sufficient knowledge to testify about whether the inventions of the patents-in-suit were included in the feasibility press.[24] At minimum, the '211 patent specifications do not contradict the credible and trustworthy testimony of Williams and Pensavecchia on this subject.[25]

C. Inequitable Conduct

Creo argues that the facts demonstrate that Presstek's change in inventorship of the '368 patent constitutes inequitable conduct since doing so removed "material" subject matter contained in the '211 patent from the P.T.O. examination. The facts, however, are open to a different, and more plausible interpretation. The original '368 patent was filed with 94 pending claims. In a first Office Action, the P.T.O. stated that the claims fell into one of four distinct categories and were, therefore, subject to a restriction requirement (i.e., Presstek could continue to prosecute only one category of claims in the pending application). In response to the restriction requirement, Presstek elected to prosecute claims 1-24 and 68. This restriction requirement also appears to have resulted in the change of inventors in the '368 patent. Thus, there is nothing in the record to indicate that the inventorship change showed that the inventors were aware that the '211 patent was material to the patentability of the '368 patent application.

In addition, Creo's a fortiori logical chain that the P.T.O. Examiner would have considered the '211 patent material is not supported by the record. The court does not agree that the '211 patent

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[24]The court has already addressed Creo's deposition designations which it claims undercuts William's testimony. *See* note 18, *supra*.

[25]The court will further discuss the record as it relates to Best Mode in its conclusions of law section. *See* Section III.A.4, *infra*.

describes a product (the feasibility press or another imaging prototype) that was on-sale or offered for sale before the critical on- sale bar date. The trial testimony by various Presstek employees does not prove otherwise. Thus, there was no "material" withholding of information. Even if there were a product on-sale embodying the '211 patent, it may not have been considered material. Indeed, the P.T.O. Examiner considered the '211 patent during the prosecution of the '205 patent but did not reject any claims on this basis.[26]

D. Infringement

In its counterclaim, Presstek asserts that the Creo DOP System induces infringement of (1) independent claim 1 of the '368 patent (and the dependent claims) and (2) independent claims 11 and 23 (and the dependent claims) of the '205 patent. Each claim contains several limitations. Some limitations are stipulated as uncontested, some are contested in passing, and some are bitterly contested. Questions of infringement require the court to make both legal determinations (i.e., construing the claims of the patents-in-suit) and factual determinations (comparing the accused products to the construed claims). Rather than engage in this hybrid two step analysis twice, the court will both repeat its claim construction and discuss the accused devices below. *See* Section III.C, *infra*.

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[26]The court has already addressed several of Creo's arguments regarding Presstek's Registration Statement. *See Creo*, 2001 WL 637397, at *4. The additional testimony and documentary evidence on this issue presented at trial showed that there were differences between a draft and the final copy of the Registration Statement. Upon examining the changes, the court concludes that the changes merely clarified the Presstek/Multigraphics relationship to state that, as information became available, the parties hoped to reach an agreement in the near future. As the record demonstrates, however, the agreement never came to fruition and the joint development project never went forward. Given this fact, the court does not believe that Presstek used the Registration Statement to "tout" its relationship with Multigraphics but downplayed it before the P.T.O. to avoid a rejection of its patent claims.

III. CONCLUSIONS OF LAW

The court will first address the issue of validity, including Creo's motion for summary judgment on claim broadening on reexamination. The court will then examine whether the patents-in-suit are unenforceable. Next, the court will discuss whether Creo induced infringement of the patents-in-suit. Upon reviewing the parties' arguments and the relevant case law, the court finds that (1) Creo has not shown, by clear and convincing evidence, that the patents-in-suit are invalid, (2) Creo has not adduced sufficient evidence to show that the inventors of the patents-in-suit engaged in inequitable conduct, and (3) Presstek has failed to demonstrate, by a preponderance of the evidence, that Creo induced infringement of the patents-in-suit. The court will explain the bases for its rulings.

A. Validity

1. Claim Broadening On Reexamination Of The '368 Patent

On January 5, 2001, Creo filed a motion for summary judgment in which it argues that claims 1-20 of the reexamined '368 patent are invalid because the claims were broadened on reexamination by the P.T.O. (D.I. 92). In a previous memorandum opinion, the court took the motion under advisement. *See Creo*, 2001 WL 637397, at *12. The court has fully considered the motion and concludes that claims 1-20 of the '368 patent were not improperly broadened upon reexamination. In explaining its decision, the court will first outline the '368 patent prosecution history and then discuss the applicable law.

a. Patent Prosecution History

Presstek filed an application for what was to become the '368 patent on January 9, 1991. In

the original application, claim 1 did not include any limitations regarding image correction.[27] The P.T.O. rejected claim 1, among others, under 35 U.S.C. § 103 as being obvious in light of U.S. Patent Nos. 4,718,340 (the "Love Patent"), 4,524,364 (the "Bain Patent"), or 4,835,544 (the "Winterburn Patent").[28] *See* Def. Ans. Br. Sum. J. Claim Broadening, App. C at C1873.[29]

In response to the P.T.O.'s initial rejection of claim 1, Presstek substantially amended it by, among other things, adding limitation c.iii which states "means for offsetting, with respect to said x and y coordinates, the action of the discharge-source actuation means to correct imaging errors."[30] *See id.* In justifying its amendment, Presstek stated:

> We have added new limitations to claim 1 to overcome the rejections over the primary references Love, III and Lewis et al., and the secondary references cited in connection therewith. Specifically, the primary art references, alone or in combination with the secondary references do not discuss or suggest offsetting control signals in order to correct image length, registration or skew errors.

Id. at C1995. The parties dispute the exact meaning of this language and what it suggests as to why Presstek proffered the amendment. In any event, the P.T.O. allowed the amendment and issued the '368 patent on November 17, 1992.

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[27]Claim 2 in the application states "[t]he apparatus defined in claim 1 and further including means for applying position offset signals to said control means to shift the x and y coordinates of said dot positions on said plate."

[28]The P.T.O. also rejected claim 1 in light of an additional patent that is not relevant to the instant dispute.

[29]By citing to the appendices in Presstek's brief, the court does not mean to suggest it prefers one parties' statement of facts over the other. On the contrary, the appendices in both Presstek and Creo's briefs merely include different pages of the prosecution history that are in both parties' briefs. The page numbers cited as "C_" appear to be Bates numbers of documents.

[30]Presstek also separated parts of the proposed element c into c.i and c.ii and made some other changes to the language. *Compare id.* at App. B, C1785, *with id.* at App. C, C1882.

On July 28, 1998, Creo filed a Request for Reexamination of the '368 patent with the P.T.O.[31] Upon reexamination, the P.T.O. rejected claim 1 of the '368 patent in light of the prior art. In response, Presstek amended claim 1 by adding language to limitation c.iii and adding limitation c.iv. Perhaps the best way to demonstrate the variations of limitation c of claim 1 of the '368 patent is to reproduce the relevant portions of both the original and the reexamined language. The original language of limitation c.iii of claim 1 read:

> means for offsetting with respect to said x and y coordinates, the actions of the discharge-source actuation means to correct imaging errors.

After the P.T.O. rejected the above language, Presstek added language to limitation c.iii and added a new limitation c.iv which teaches:

> iii means for offsetting with respect to said x and y coordinates, the actions of the discharge-source actuation means in accordance with the angular offset parameters to correct the angular inconsistencies; and
>
> iv means for altering the length of the scan in accordance with the size difference parameters to correct the image size inconsistencies.

The court's *Markman* ruling construed several phrases in the '368 patent claims. Among the terms it construed was a clause in limitation c.ii which reads "angular inconsistencies among plate cylinders" to mean "inconsistencies in the rotational positions of the plate cylinders that cause printed images to be out of alignment in the 'y' direction." *See* D.I. 64 at ¶ 6. The court also added

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[31]Presstek points to two sources of information to suggest that Creo's current position is disingenuous. First, Presstek states that Creo's Request for Reexamination, takes the position that the original '368 patent was too broad. *See id.* at App. E, C4171-72. The Request is part of the prosecution history and is intrinsic evidence. Second, Presstek points to two emails between Creo employees which state that Presstek narrowed its claims upon reexamination. *See id*. at App. G, C2124. The emails are not part of the prosecution history and are therefore extrinsic evidence. Although the Request for Reexamination may be relevant since it is intrinsic evidence, the email is extrinsic evidence and was not considered by the court.

a footnote which briefly outlined the contours of the present dispute but declined to reach the issue at that time. *See id.* at n.1. In the footnote, the court stated:

> The term angular is consistently used in the patent to refer to the rotational or circumferential position [but that] . . . . there is some tension between [the aforementioned] construction of 'angular' inconsistencies and the claim language that requires offsetting 'with respect to said x and y coordinates' . . . . This tension is somewhat mitigated when one considers that 'x' and 'y' coordinates work together (i.e., as a unit) to define a single location on a plate. Thus, moving a particular image spot in the 'y' direction could reasonably be said to require an adjustment to its 'x and y coordinates'.

Id. It appears that in its *Markman* order, the court accepted Presstek's construction of "angular inconsistencies" but allowed Creo to argue at a later date that such a constriction is an impermissible broadening of claim 1 of the '368 patent.

b. Discussion

Neither party disputes that claims that are broadened on reexamination are invalid.[32] *See* 35 U.S.C. § 305; *Quantum v. Rodine, PLC*, 65 F.3d 1577, 1580 (Fed. Cir. 1995). Further, the parties agree that the proper method for the court to determine whether a claim was broadened on reexamination is (1) to determine the scope of the original claim and (2) determine the scope of the reexamined claim. *See In re Freeman*, 30 F.3d 1459, 1464 (Fed. Cir. 1994). As with traditional *Markman* determinations, the court must first look to the intrinsic evidence (the claims, the written specification, and the prosecution history) and then may consider the extrinsic evidence. *See, e.g., Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582-84 (Fed. Cir. 1996). A reexamined claim

[32]The parties dispute whether an impermissible claim broadening of the independent claim renders all the dependent claims invalid. Given the court's ruling, however, it declines to address this issue.

is considered impermissibly broad if it "is broader in any respect [than the original claim] . . . even though it may be narrower in other respects." *See Freeman*, 30 F.3d at 1464 (citation omitted). Rather than debating the contours of the law, the parties focus their attention on the interpretation of the original and the reexamined claim 1.

The crux of the issue, therefore, is how to construe the "means plus function" language of original claim 1, limitation c.iii as permitted by 35 U.S.C. § 112, ¶ 6. To interpret "means for offsetting . . . to correct imaging errors" the court must (1) identify the function defined in the claim element and (2) identify the structure in the specification that corresponds to that function. The parties dispute both steps but agree that both require resort to the patent specifications.[33]

The parties differ whether the court should read the patent specifications into limitation c.iii of claim 1.[34] Creo maintains that the original claim 1, limitation c.iii required correction for *all* imaging errors identified in the patent specification while reexamined claim 1c.iii and c.iv merely require correction of a "subset" of the imaging errors – they do not require the ability to correct for errors in the axial direction. According to this line of reasoning, "a device that has no capacity of correcting for imaging errors in the axial direction would not infringe the original claim, but would

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[33]Presstek also advances the argument that Creo's expansive reading of "means for offsetting" renders dependent claim 2 ("the controller further includes means for altering the length of the scan to adjust the circumferential size of the image") meaningless. Since the doctrine of claim differentiation – limitations in dependent claims should not be read into independent claims – prevents this, Presstek argues that Creo's position that original claim 1 must correct for all errors is wrong. *See* Def. Ans. Br. Sum. J. Claim Broadening at 10-11.

[34]The most relevant language in the specifications is at col. 9:45-11:10 of the '368 patent. Presstek, however, also points to cols. 10:13-15, 10:65-11:4, and 13:9-12 to support its argument that the specifications are ". . . illustrative and are not meant to be an inclusive list of all imaging error which must or may be corrected by the invention claimed in original claim 1." *See id.* at 11-12.

infringe the reexamined claim." *See* Pl. Op. Br. Sum. J. Claim Broadening at 2. Presstek, on the other hand, argues that the specifications describing imaging errors are "merely examples" of various problems and how to correct for them. *See* Def. Ans. Br. Sum. J. Claim Broadening at 11-12 (citing language from patent specification).

When the court looks to patent specifications to assist in interpreting claims, it must refrain from reading a limitation from the written description into the claim. *See Tate Access Floors, Inc. v. Maxcess Technologies, Inc.*, 222 F.3d 958, 966 (Fed. Cir. 2000) (citing, *inter alia*, *Renishaw PLC v. Mareposs Societa' Per Azioni*, 158 F.3d 1243, 1248 (Fed. Cir. 1998)); *Kemco Sales, Inc. v. Control Papers Co., Inc.*, 208 F.3d 1352, 1362 (Fed. Cir. 2000) (cited in *Tate*); *see also Sjolund v. Muslan*, 847 F.2d 1573, 1581 (Fed. Cir. 1988) ("[W]hile it is true that claims are to be interpreted in light of the specification and with a view to ascertaining the invention, it does not follow that limitations from the specification may be read into the claims . . . ."); *SRI Intn'l v. Matsushita Elec. Corp. of Am.*, 775 F.2d 1107, 1121 (Fed. Cir. 1985) ("[C]laims are construable . . . in light of the specification, yet '[t]hat . . .does not mean that everything expressed in the specification must be read into all the claims.'") (quoting *Raytheon Co. v. Roper Corp.*, 724 F.2d 951, 957 (Fed. Cir. 1985)) (citations omitted).

Given the above, Creo's motion for summary judgment must fail. In its motion, Creo argues that the "means for offsetting" limitation of original claim 1 must correct for all the imaging errors discussed in the '368 patent. This argument, however, falls into the trap of redefining the stated function of the claim element in light of the preferred embodiment. As previously discussed, the purpose and effect stated for performing the offsetting function of original claim 1 is "to correct imaging errors." The term "imaging errors" is a general reference to all types of errors associated

with imaging and is not limited to those discussed in the '368 patent specifications.

Further, the patent prosecution history demonstrates that Creo's interpretation of claim 1 is contrary to the other claims of the '368 patent. Dependent claim 2 of the originally issued '368 patent was directed to image size correction in the circumferential direction. This is one of the imaging errors that Creo asserts is covered by the language in original claim 1. If, as Creo asserts, the "means for offsetting" language in original claim 1 was already limited to require correction for all imaging errors, then dependant claim 2 would be redundant and meaningless. This interpretation would violate the doctrine of claim differentiation. *See Kraft Foods, Inc. v. Int'l Trading Co.*, 203 F.3d 1362, 1368 (Fed. Cir. 2000) (stating that claim differentiation creates presumption that each patent claim has different scope).

The limitation "means for offsetting" is best understood by looking at the patent prosecution history. As originally filed, claim 1 was did not include the capability to shift or adjust the length of images; such capabilities were found in dependent claims 2 and 3. As outlined above, the P.T.O. rejected original claim 1 in light of the Love, Bain, or Winterburn patent. To overcome the rejection, Presstek amended the claim (and specifically limitation sub-part iii) to include imaging errors generically, something not disclosed in the cited prior art references. Indeed, Presstek stated that "the primary references do not discuss or suggest offsetting control signals in order to correct image length, registration or skew errors." Thus, the original claim 1 did not require all image corrections.[35] Since original claim 1 did not require all image corrections, it follows that the reexamined claim 1 is not impermissibly broad. The court, therefore, will deny Creo's motion for summary judgment on this ground.

[35]The court is also unpersuaded by Creo's arguments regarding the Lewis '075 patent.

2. Obviousness

Section 103 of the Patent Act prohibits the patenting of an "obvious" invention. This section provides, in relevant part:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, 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). The relevant considerations were announced by the Supreme Court over thirty years ago:

> Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness, these inquiries may have relevancy.

Graham v. John Deere Co., 383 U.S. 1, 17-18 (1966); *see also Apple Computer, Inc. v. Articulate Sys., Inc.*, 234 F.3d 14, 26 (Fed. Cir. 2000) (stating that considerations include "(1) the scope and content of the prior art; (2) the differences between the claimed invention and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of non-obviousness, such as commercial success, long-felt but unsolved need, failure of others, copying, and unexpected results."). Because a patent and its claims are presumed valid, *see* 35 U.S.C. § 282, the party challenging a patent – in this case, Creo – must establish the facts supporting a determination of invalidity by clear and convincing evidence. *See Richardson-Vicks, Inc. v. Upjohn Co*, 122 F.3d 1476, 1480 (Fed. Cir. 1997).

When making an obviousness analysis based on prior art, courts must not fall prey to a "hindsight syndrome" by reasoning backward from the teaching of the patent itself. *See In re Kotzab*, 217 F.3d 1365, 1369 (Fed. Cir. 2000). According to the Federal Circuit, "the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references." *See In re Gartside*, 203 F.3d 1305, 1319 (Fed. Cir. 2000); *see also B.F. Goodrich Co. v. Aircraft Braking Sys. Corp.*, 72 F.3d 1577, 1582 (Fed. Cir. 1996). In other words, something in the prior art, considered as a whole, must "suggest the desirability, and thus the obviousness, of making the combination" of different elements to create the invention. *See Fromson v. Advance Offset Plate, Inc.*, 755 F.2d 1549, 1556 (Fed. Cir. 1985) (citation omitted).

A device that was in public use or on sale in the United States more than one year prior to the application date for a patent – in this case January 9, 1990 – may be prior art under 35 U.S.C. § 102(b). In *Finnigan Corp. v. Int'l Trade Comm'n*, the Federal Circuit described how courts have long looked with disfavor upon invalidating patents merely on the basis of testimonial evidence. 180 F.3d 1354, 1366 (Fed. Cir. 1999) (stating that "[t]he Supreme Court recognized over one hundred years ago that testimony concerning invalidating activities can be 'unsatisfactory' due to 'the forgetfulness of witnesses, their liability to mistakes, their proneness to recollect things as the party calling them would have them recollect them, aside from the temptation to actual perjury.'") (quoting *The Barbed-Wire Patent*, 143 U.S. 275, 284 (1892)). The *Finnigan* court also further clarified that corroboration is required. *See Finnigan* 180 F.3d at 1366 (finding that "the need for corroboration exists regardless whether the party testifying concerning the invalidating activity is interested in the outcome of the litigation (e.g., because that party is the accused infringer) or is uninterested but

testifying on behalf of an interested party."); *see also Woodland Trust v. Flowertree Nursery*, 148 F.3d 1368, 1371 (Fed. Cir. 1998) (stating that "[c]orroboration of oral evidence of prior invention is the general rule in patent disputes.").

In this case, Creo asserts that the Lewis '075 patent and the Image 5008 are two prior art references that make the patents-in-suit invalid as obvious prior to January 9, 1990. Given the court's findings of fact and the above discussed case law, the court need not tarry long on this issue. Contrary to Creo's assertion, there is no clear and convincing evidence in the record to suggest that, during reexamination, the P.T.O. Examiner failed to consider the Lewis '075 patent. *See* note 14 & accompanying text, *supra*. As for the Image 5008, Creo relies entirely on the testimony of Gelbart to prove that the product was sold or was in operation in the United States prior to January 9, 1990. This type of oral and uncorroborated testimony is precisely what the Federal Circuit in *Finnigan* cautioned the courts against using to find obviousness. Not only is Gelbart, as President of Creo, an interested party, but his testimony is vague as to products themselves. For example, Gelbart did not state where in the United States the Image 5008s were located, who used them, or how they were operated.

On the other side of the coin, the record indicates the GTO-DI and the QuickMaster 46 DI, both of which incorporated the patents-in-suit, were commercial successes. Not only were both products very well received when they debuted at trade shows, but third parties, including Creo, have said complimentary things about the products and even licensed the patents-in-suit. This evidence of commercial success of the first two products incorporating the '368 and '205 patents somewhat counterbalances Creo's evidence regarding obviousness. Since the court finds that Creo has failed to prove, by clear and convincing evidence, that the Image 5008 and the Lewis '075 rendered the

patents-in-suit obvious, the court declines to invalidate them on this basis.

3. On-Sale Bar

The court has already set forth the legal standard governing the on-sale bar of 35 U.S.C. § 102(b). *See Creo*, 2001 WL 637397, at *2 (citing and discussing cases). Importantly, "[w]hether an invention was on sale more than one year before the patent's application date is a question of law for the court to decide based on underlying factual determinations." *See id.* Put simply, Creo has the burden to prove, by clear and convincing evidence, that prior to January 9, 1990 (1) a product embodying the claimed invention was the subject of a commercial offer for sale and (2) the claimed invention was ready for patenting. *See id*; *see also Pfaff v. Wells Elecs, Inc*., 525 U.S. 55, 57 (1998). Both conditions must be satisfied. *See id.* The court finds that Creo has failed to meet its burdens under *Pfaff*. Therefore, the court declines to find the patents-in-suit invalid in violation of 35 U.S.C. § 102(b). The court will address these issues in turn.

a. First *Pfaff* Prong

To satisfy the first condition stated in *Pfaff*, Creo "must demonstrate by clear and convincing evidence that there was a definite sale or offer to sell more than one year before the application for the subject patent, and that the subject matter of the sale or offer to sell fully anticipated the claimed invention or would have rendered the claimed invention obvious by its addition to the prior art." *See STX, L.L.C. v. Brine, Inc.*, 211 F.3d 588, 590 (Fed. Cir. 2000) (quotation and citation omitted); *Vanmoor v. Wal-Mart Stores*, 201 F.3d 1363, 1366 (Fed. Cir. 2000) (stating that invalidating sale must involve device that "actually embodied or rendered obvious the patented invention") (quoting *Evans Cooling Sys., Inc. v. General Motors, Corp.*, 125 F.3d 1448, 1451 (Fed. Cir. 1997)); *Tec Air, Inc. v. Denso Mfg. Michigan Inc.*, 192 F.3d 1353, 1358 (Fed. Cir. 1999). Thus, "[t]he first

determination in the §102(b) analysis must be whether the subject of the barring activity met each of the limitations of the claim, and thus was an embodiment of the claimed invention." *See Scaltech Inc. v. Retec/Tetra, L.L.C.*, 178 F.3d 1378, 1383 (Fed. Cir. 1999).

According to its argument, Creo asserts that the Presstek feasibility press embodied or rendered obvious the claimed invention prior to the critical on-sale bar date. According to the record, however, the feasibility press was a work-in-progress; at no point in 1988 or 1989 did it contain all the limitations of the patents-in-suit. On the contrary, the evidence shows that the feasibility press image adjustments in the circumferential direction had to be performed manually and mechanically. This was because the feasibility press only had one magnetic encoder which was unable to provide sufficient information to determine the angular inconsistencies among the plate cylinders. Thus, the feasibility press – contrary to the claimed invention – had no ability to electronically change the size of an image in the circumferential direction to achieve registration.[36] This difference, and others, is significant and was in no way obvious from the feasibility press.[37]

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[36]The record indicates that Presstek only solved some of its problems associated with the feasibility press once it began working with the Heidelberg GTO press. This was because the feasibility press was constructed from old presses while the GTO press was of much better quality. The work on the GTO press began in "early 1990." Although Presstek could have begun work on the GTO press between January 1 and 9, 1990, it appears that the work carried into the spring of that year. Indeed, it was not until the spring of 1990 that several aspects of the claimed invention were discovered and incorporated into the GTO press. Therefore, Presstek's work on the GTO press in the opening days of 1990 is an insufficient basis upon which the court can conclude that Creo has met its burden with regards to Presstek having a product which could violate the on-sale bar.

[37]In their proposed conclusions of law, the parties did not directly address the device that Presstek showed Heidelberg in the fall of 1989. The device was not the feasibility press (or any printing press). Rather, it was a "laboratory fixture" which was comprised of a single plate cylinder with a single imaging device. Creo has not adduced sufficient evidence regarding this device for the court to find that it incorporated the claimed invention in such a way as to violate 35 U.S.C. § 102(b).

Thus, even if the feasibility press – or the technology based on it – was the subject of a commercial sale, the subject matter did not fully anticipate the claimed invention or render it obvious by its addition to the prior art.

The parties spend considerable time arguing about whether the January 31, 1989 letter agreement between Multigraphics constituted a commercial offer for sale. The Federal Circuit has recently held that since "the question of whether an invention is the subject of a commercial offer for sale is a matter of Federal Circuit law," courts should look to the Uniform Commercial Code (U.C.C.) to determine whether "a communication or series of communications rises to the level of a commercial offer for sale." *See Group One Ltd. v. Hallmark Cards, Inc.,* 254 F.3d 1041, 1047 (2001) (internal quotations omitted).[38] Rather than give specific guidance, the Federal Circuit cautioned that courts should "look closely at the language" as evidence of intent. *See id.* at 1048. Although it is true that the U.C.C. does not require that each and every detail of an agreement be fleshed out, the January 31, 1989 agreement was deficient in several crucial respects.

The January 31, 1989 letters make specific reference to several schedules which, were to include (1) a description of what Presstek agreed to provide Multigraphics, (2) prices for the presses Multigraphics was to provide Presstek, (3) a Multigraphics "Standard Purchase Order," (4) a Presstek "Software License Agreement" and (5) a non-disclosure agreement.[39] Putting aside Creo's

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[38]The court does not read *Group One* to require district courts to *only* look to the U.C.C. at the expense of other "useful" sources in determining the ordinary commercial meaning of terms used by the parties. Rather, "[t]he U.C.C. has been recognized as the general law governing the sale of goods and is a . . . useful, *though not authoritative*, source . . . . " *See id.* (quoting *Enercon GmbH v. Int'l Trade Comm'n*, 151 F.3d 1376, 1383 (Fed. Cir. 1998) (emphasis added). However, since neither Creo nor Presstek suggest other sources or that the U.C.C. conflicts with applicable state law, the court will only consider the U.C.C. in this case.

[39]*See* note 20 & 23, *supra*.

arguments regarding prices, several key terms are missing. Most important, it is unclear what Presstek is agreeing to provide to Multigraphics. On the other hand, the letter is explicit on what Multigraphics is going to give Presstek (one and two color Eagle presses). This discrepancy was apparently going to be remedied in an attached schedule – that it was not suggests that the subject matter of the agreement is too indefinite for it to be enforceable. Moreover, there is no evidence linking the "Presstek System" to the claimed inventions of the patents-in-suit.[40] Thus, the court cannot conclude, on the basis of the record, that Creo has met the first prong of the *Pfaff* test. Not only has Creo failed to demonstrate that the product which existed during the relationship between (1) Presstek and Heidelberg and (2) Presstek and Multigraphics embodied the claimed invention, it has not sufficiently proven the existence of a commercial offer for sale which embodied the claimed invention in violation of 35 U.S.C. § 102(b).

b. The Second *Pfaff* Prong

Even if the court were to conclude that Creo has proven, by clear and convincing evidence, that Presstek's relationship with Multigraphics and with Heidelberg satisfied the first *Pfaff* prong, its argument must still fail. According to the second prong of the *Pfaff* test, the invention must be ready for patenting. The invention need not be reduced to practice to be ready for patenting. Rather, "[i]t is enough that [the inventor] describes his method with sufficient clearness and precision to enable those skilled in the matter to understand what the process is, and if he points out some practicable way of putting it into operation." *See Pfaff*, 525 U.S. at 62 (quoting *The Telephone Cases*, 126 U.S. 1 (1888)); *see also id.* at 66 (stating that "one can prove that an invention is

[40]As discussed above, even if Creo were able to link the "Presstek System" to the feasibility press, its claim would still fail since, at the time of the letter agreement, the feasibility press was significantly different than the claimed inventions.

complete and ready for patenting before it has actually been reduced to practice"). The Supreme Court found the second *Pfaff* prong was satisfied since the inventor had "prepared drawings or other descriptions" of the invention. *See id.* An inventor's sufficiently specific explanation to someone skilled in the art to practice the invention is also enough to demonstrate that the invention is ready for patenting. *See Robotic Vision Sys. v. View Engineering, Inc.,* 249 F.3d 1307, 1311 (Fed. Cir. 2001).

As discussed above, the claimed invention in this case was not reduced to practice. Further, the record is bereft of the existence of disclosures, specifications, drawings or other written descriptions of the claimed invention that would allow someone skilled in the art to practice the invention on or before January 9, 1989. It does not matter that portions of the claimed invention may have been conceived prior to the on-sale bar date.[41] *See id.* at 1311 (citing *Pfaff*, 525 U.S. at 67) (defining "invention" in § 102(b) to mean complete conception). On the contrary, it appears that Presstek did not discover several of the crucial aspects of the claimed invention until the spring of 1990. *See* note 41 & accompanying text, *supra*. Thus, Creo has failed to establish, by clear and convincing evidence, that the claimed invention was ready for patenting on or before January 9, 1990.

Upon examining the facts of this case, the court concludes that Creo has failed to prove, by clear and convincing evidence, that Presstek's actions satisfy either prong of the *Pfaff* test. Since Creo must demonstrate the presence of both steps of the *Pfaff* test, the court would be justified in

[41]At trial, Williams testified that some of the aspects of the '368 patent were "scattered around in a lot of notebooks as ideas of how to solve this problem." When pressed, however, he could not remember the dates of these "ideas." Since the notebooks were "scattered" and merely contained "ideas," the court does not believe that the evidence sufficiently demonstrates that someone skilled in the art could use them to practice the claimed invention.

finding the on-sale bar was not violated on either or both bases. As a result, the court will decline to invalidate either the '368 or the '205 patents under 35 U.S.C. § 102(b).

4. Best Mode

A patent is invalid if the specification does not describe the "best mode contemplated by the inventor of carrying out his invention." *See* 35 U.S.C. § 112, ¶ 1. The "purpose of this . . . requirement is to restrain inventors from applying for patents while at the same time concealing from the public preferred embodiments of their inventions which they have in fact conceived." *See In re Gay*, 309 F.2d 769, 772 (1962). Because the record does not support a best mode violation by Presstek, the court will decline to invalidate the patents-in-suit on this basis.

Determining whether a patent satisfies the best mode requirement involves a two-part factual analysis. *See Eli Lily and Co. v. Barr Lab.*, 251 F.3d 955, 963 (Fed. Cir. 2001) (citing cases). First, the court, as the factfinder, must determine whether, at the time the patent application was filed, the inventor had a best mode of practicing the claimed invention. *See id* (citing cases)*; see also United States Gypsum Co. v. National Gypsum Co.*, 74 F.3d 1209, 1212 (Fed. Cir. 1996); *Chemcast Corp. v. Arco Indus. Corp.*, 913 F.2d 923, 927-928 (Fed. Cir. 1990). This inquiry is wholly subjective and focuses on the inventor's state of mind at the time of filing to determine whether he or she must disclose any facts in addition to those sufficient for enablement. *See Eli Lilly*, 254 F.3d at 963; *United States Gypsum*, 74 F.3d at 1212.

Second, if the inventor had a best mode of practicing the claimed invention, the court, again as the factfinder, must then determine if the specification adequately disclosed what the inventor contemplated as the best mode so that those having ordinary skill in the art could practice it. *See Eli Lilly*, 254 F.3d at 963; *United States Gypsum*, 74 F.3d at 1212. This inquiry is an objective one that

depends upon the scope of the claimed invention and the level of skill in the art. *See Eli Lilly*, 251 F.3d at 963; *Unites States Gypsum*, 74 F.3d at 1212. Because patents are presumed valid, *see* 35 U.S.C. § 282, Creo must establish a best mode violation by clear and convincing evidence. *See Nobelpharma AB v. Implant Innovations, Inc*., 141 F.3d 1059, 1064 (Fed.Cir.1998); *United States Gypsum*, 74 F.3d at 1212.

Creo asserts two best mode violations. First, Creo argues that the '368 patent is invalid. According to Creo, at the time of the filing of the '368 patent application the inventors were aware that angular encoders at each print station of a printing press was the best mode for a central impression cylinder press and that the '368 patent specification failed to disclose this.[42] Second, Creo maintains that the '368 and '205 patents are invalid. Creo submits that, at the time of filing both of the patents in suit, the inventors knew that the Hall Effect sensor was the best mode to determine the correct home position in the claimed invention but that they failed to include it in the specifications of the patents-in-suit. Since the court finds that Creo has failed to sufficiently prove the first step of the analysis in both of their best mode arguments, the court declines to discuss the second step.

a. Angular Encoders On Each Print Station For a Central Impression Cylinder Press

In its brief, Creo points to testimony from Williams, one of the named inventors of the '368 patent. Williams testified that while working on the GTO press in the spring of 1990, Presstek discovered the necessity of having angular encoders at each print station to achieve proper

[42]There does not appear to be any dispute that Presstek disclosed the use of separate encoders on an in-line press in the '368 patent specification. *Compare* Pl. Op. Mem. Best Mode at 5, *with* Def. Ans. Mem. Best Mode at 4. The court, therefore, will confine its review to the central impression cylinder press.

registration. The GTO press, however, is an in-line press (rather than a central impression cylinder press).[43] Thus, it is clear that as of the spring of 1990, Presstek knew angular encoders at each print station were the best mode for an in-line press. Creo's "smoking gun" regarding the central impression cylinder press merely consists of Williams agreeing with the statement that ". . . even with a central impression cylinder press, you need to have angular encoders at each print station . . ." Unlike the specific testimony regarding the GTO press, this statement does not give a time frame in which Presstek made its discovery regarding central impression cylinder presses. Although Williams' statement may have reflected knowledge he had in the spring of 1990, it is also possible that his assessment regarding the need for several angular encoders in a central impression cylinder press was the result of information acquired at a later date. This vague statement falls short of demonstrating, by clear and convincing evidence, that Williams knew, prior to January 9, 1991, that the best mode for a central impression cylinder press was to have an angular encoder at each print station.[44]

Contrary to Creo's assertions, the record suggests that, at the time of the feasibility press, Presstek did not know whether it was necessary to have an angular encoder at each print station in a central impression cylinder press. The feasibility press was a central impression cylinder press

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[43]An in-line press is one which has print stations line up one in front of the other. A central impression cylinder press has one cylinder with print stations attached around its circumference.

[44]In its motion, Creo makes a passing reference to the testimony of Pensavecchia, another named inventor of the '368 patent. Although Pensavecchia stated that the single angular encoder on the feasibility press was insufficient to accurately determine the position of the plate cylinders, he appears to attribute the problem to poor gearing rather than the lack of additional encoders. Pensavecchia's testimony falls short of establishing that, at the time of the feasibility press, he was aware that individual encoders at each print station represented the best mode. Further, as is discussed below, his belief about bad gearing was shared by others at Presstek.

built by Presstek from various parts of old, used presses. According to Williams' testimony, Presstek believed that the images it produced were of poor quality because of "inaccurate gears" which caused "the position to vary and oscillate around a true position."[45] Williams also stated that Presstek was not aware, at that time, that electronic corrections would be required on each of the plates. The feasibility press, therefore, would not have lead the inventors of the patent-in-suit to believe that angular encoders at each print station was the best mode for a central impression cylinder press.

Further, after Presstek got involved with Heidelberg, it stopped work on a central impression cylinder press and focused on an in-line press – the GTO (which eventually became the GTO-DI). After the success of the GTO-DI at Print '91, Presstek returned to working with Heidelberg on a central impression cylinder press. This resulted in the QuickMaster 46 DI, which included angular encoders at each print station. As evidenced by the '211 patent, prior to working on the QuickMaster 46 DI, Presstek thought a central impression cylinder press was more accurate than an in-line press. Although Presstek's work on the GTO-DI may have cast doubt on this belief in the inventors' minds, they did not actually discover that angular encoders were required at each print station until they began work on the QuickMaster 46 DI. Although the record is a bit unclear as to when Presstek began work on the QuickMaster 46 DI, it appears that it was after the GTO-DI was unveiled at Print '91 (in September, 1991).

The court, therefore, concludes that not only has Creo failed to show, by clear and convincing

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[45]A prior Presstek patent supports this (now discredited) theory. The '211 patent (which has the same inventors as the patents-in-suit) was granted prior to the filing of the application of the '368 and '205 patents. The '211 patent is directed to a central impression cylinder press and teaches that specially manufactured gears and the transfer of sheets between print stations would lead to improvements in registration. Thus, at the time '211 patent application was filed, Presstek believed that central impression cylinder presses required special gears to achieve better registration over a conventional press (rather than individual angular encoders).

evidence, that the inventors of the '368 patent knew, prior to January 9, 1991, that angular encoders at each print station was the best mode for a central impression cylinder press, but that the record suggests that the inventors were not aware of the best mode for a central impression cylinder press until, at least, September, 1991.

b. Determining Accurate Starting Positions For The Imaging Head

There is no dispute that the asserted claims of the patents-in-suit do not include any limitations directed to a device for determining the home position of the imaging device. *Compare* Pl. Op. Br. Best Mode at 6, *with* Def. Ans. Br. Best Mode at 7. As the Federal Circuit recently stated, "[a patent] applicant is only obliged to disclose unclaimed elements when they are necessary to the operation of the invention." *See Mentor H/S, Inc. v. Med. Device Alliance, Inc.*, 244 F.3d 1365, 1375 (Fed. Cir. 2001) (citing *Applied Med. Res. Corp. v. United States Surgical Corp.*, 147 F.3d 1374, 1377 (Fed. Cir. 1998)). Upon reading the parties' submissions and the record, the court concludes that Creo has failed to prove, by clear and convincing evidence, that at the time the patents-in-suit were filed, the inventors considered the Hall Effect sensor the best mode for the claimed invention. Therefore, the court will not invalidate the patents-in-suit on this basis.[46]

To support its best mode argument, Creo points to the Hall Effect sensor, which apparently can be used to determine an accurate starting position for the imaging head. Creo bases its contention on a June 27, 1989 meeting attended by several of the named inventors of the '368 and/or the '205 patents. According to Creo, this discussion (as reflected in a short memorandum describing

[46]Because the court finds that Creo has failed to prove that, prior to the filing of the patents-in-suit, the inventors considered the Hall Effect sensor the best mode for practicing the claimed invention, it need not address whether the Hall Effect sensor, or some other device for determining the home position of the imaging head, is necessary to the claimed invention.

the meeting) and the testimony of Steve LaPonsey establish that the inventors considered the Hall Effect sensor the "best mode" of practicing the claimed invention.

According to a June 27, 1989 "Technical Meeting Summary" there was a meeting to discuss "controller implementation strategy for the image head transverse drive assembly." Present at the meeting were Jack Gardner, John Kline, LaPonsey and Pensavecchia. The purpose of the meeting was "to exchange information on the current and planned implementation of the mechanical . . . aspects of . . . [the Traverse Drive Assembly], and make adjustments as required." Thus, the meeting appears more planning, strategic, or troubleshooting than a definitive discussion of the best way to operate the Traverse Drive Assembly.

Although the Hall Effect sensor was discussed at the meeting with an eye toward using it in a future press, it appears that there were problems with its use that needed to be overcome. Indeed, the memorandum indicates that although the Hall Effect "limit switches" were accurate when operated by hand turning of the lead screw, when a "step motor controller was used," the accuracy was "much less and unacceptable for determining the home position." According to the memorandum, "[t]he reasons for this difference in accuracy are not yet understood." Further, the memorandum describes how the Hall Effect sensor *will* be used – not how it *is* used or how it actually worked in the Presstek system. Given the context of the meeting – to exchange information and make adjustments as required – the court believes the discussion of the Hall Effect sensor does not, by clear and convincing evidence, support Creo's claim that at that time the inventors *knew* it was the best mode of operating the claimed invention.

B. Inequitable Conduct

An applicant for a patent engages in inequitable conduct before the P.T.O. when he or she

withholds or misrepresents information material to the patentability of his invention, with an intent to deceive. *See Nobelpharma*, 141 F.3d at 1068-71 (citing *Molins PLC v. Textron, Inc.*, 48 F.3d 1172, 1178 (Fed. Cir. 1995)). Inequitable conduct includes affirmative misrepresentations of a material fact, failure to disclose material information, or submission of false material information, coupled with an intent to deceive. *Baxter Int'l, Inc. v. McGaw Inc.*, 149 F.3d 1321, 1327 (Fed. Cir. 1998) (citing *Nobelpharma*, 141 F.3d at 1068-71). To establish unenforceability based on inequitable conduct, Creo must prove, by clear and convincing evidence, that material information was intentionally withheld for the purpose of misleading or deceiving the patent examiner. *See Allied Colloids, Inc. v. American Cyanamid Co.*, 64 F.3d 1570, 1578 (Fed. Cir. 1995) (citation omitted).

A determination of inequitable conduct requires a two step analysis. First, the trial court must determine whether the applicant withheld information which meets a threshold level of materiality. A reference is deemed material if there is a substantial likelihood that a reasonable examiner would consider it important in deciding whether to allow the application to issue as a patent. *See id.* According to the Federal Circuit, "materiality does not presume intent, which is a separate and essential component of inequitable conduct." *See Manville Sales Corp. v. Paramount Sys., Inc.*, 917 F.2d 544, 552 (Fed. Cir. 1990) (internal citation omitted).

After determining if the applicant withheld information is that material, the trial court must then also determine whether the evidence shows a threshold level of intent to mislead the P.T.O. *See Baxter,* 149 F.3d at 1327. "Intent to deceive can not be inferred solely from the fact that information was not disclosed; there must be a factual basis for a finding of deceptive intent." *Hebert v. Lisle Corp.*, 99 F.3d 1109, 1116 (Fed. Cir. 1996). Thus, to satisfy the intent to deceive element of

inequitable conduct, the conduct when viewed in light of all of the evidence, including evidence of good faith, must indicate sufficient culpability to require a finding of intent to deceive. *See Paragon Podiatry Lab., Inc. v. KLM Labs, Inc.*, 984 F.2d 1182, 1189 (Fed. Cir. 1993).

The initial determinations of materiality and intent to deceive are questions of fact. *See Monon Corp. v. Stoughton Trailers, Inc.*, 239 F.3d 1253, 1261 (Fed. Cir. 2001) (citation omitted). Once findings of facts are established, the court should then weigh the findings and their premises and decide, in the court's exercise of discretion, whether to hold the patent unenforceable. *See ATD Corp. v. Lydall, Inc.*, 159 F.3d 534, 547 (Fed. Cir. 1998). If a court decides that inequitable conduct has occurred with respect to one or more claims during prosecution of the patent application, the entire patent is unenforceable. *See Weatherchem Corp. v. J.L. Clark, Inc.*, 163 F.3d 1326, 1336 (Fed. Cir. 1998) (citing *Kingsdown Med. Consultants Ltd. v. Hollister, Inc.*, 863 F.2d 867, 877 (Fed. Cir. 1988)).

Creo maintains that the inventors of the patents-in-suit failed to disclose Presstek's sale of an on press imaging system from a press that corresponds to the '211 patent during the original prosecution and reexamination of the '368 and '205 patents. This contention, however, is not supported by clear and convincing evidence. As an initial matter, the '211 patent does not disclose a product (either the feasibility press or a prototype) that was on-sale or offered for sale before January 9, 1990. Even if it did, there was no "material" withholding of information by Presstek employees, either during the patent prosecution or in the Registration Statement. *See* note 26 & accompanying text, *supra*. Further, even if the information was material, Creo has not adduced sufficient evidence to convince the court that the inventors had "deceptive intent." Even if the record were to somehow show inequitable conduct by the inventors, the court – after reviewing the entire

record – would exercise its discretion and decline to find the patents-in-suit unenforceable.

C. Infringement

Presstek has accused Creo of inducing infringement of the '368 and '205 patents – it does not claim that the DOP System directly infringes. According to 35 U.S.C. § 271(b), inducing infringement first requires that there by actual, direct infringement. *See* 35 U.S.C. § 271(b). To prove inducing infringement, Presstek must also demonstrate that (1) Creo took actions that aided and abetted the direct infringement and (2) Creo knew or should have known that its actions would induce actual infringement. *See Manville*, 917 F.2d at 553; *E.I. DuPont de Nemours & Co. v. Monsanto Co.*, 903 680, 736 (D. Del. 1995), *aff'd mem.*, 92 F.3d 1208 (Fed. Cir. 1996). Upon reviewing the trial transcript, the exhibits, the deposition designations, and the parties' submissions the court finds that Presstek has failed to meet its burden to show direct infringement of the '368 and '205 patents. Since the court concludes that the SM 74 DI and the Komori Press do not directly infringe the patents-in-suit, it declines to find that Creo induced infringement of the patents-in-suit.[47] The court will briefly explain the basis of its ruling.

Direct infringement occurs when "whoever without authority makes, uses or sells any patented invention, within the United States during the term of the patent therefor, infringes the patent." *See* 35 U.S.C. § 271(a). According to the Federal Circuit, a patent infringement analysis requires two steps. *See Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473, 1476 (Fed. Cir. 1998). First, the claim must be properly construed to determine its scope and meaning. *See*

[47]Given Pressek's failure to establish this threshold requirement for inducing infringement, the court believes it unnecessary and redundant to discuss the other two aspects of inducing infringement. In the absence of direct infringement, it must follow that Creo did not take any actions to aid or abet direct infringement, knowing or otherwise.

Markman v. Westview Instruments, 52 F.3d 967, 976 (Fed. Cir. 1995). Second, the claim as properly construed must be compared to the accused device or process. *See id.*

As stated above, the court has already construed the terms of the patents-in-suit. *See* D.I. 64-65. Thus, the only task left is to compare the accused devices – SM 74 DI and the Komori Press – to the court's claim interpretation. Presstek must prove, by a preponderance of the evidence, that the accused devices contain, either literally or under the doctrine of equivalents, every limitation of the patent claims. *See Jeneric/Pentron, Inc. v. Dillon Co, Inc*. 205 F.3d 1377, 1382-83 (Fed. Cir. 2001). On the other hand, if the court finds that the accused devices fail to meet one claim limitation, either literally or equivalently, then the accused devices cannot infringe. *See Spectrum v. Sterlite Corp.*, 164 F.3d 1372, 1379 (Fed. Cir. 1998).

1. Use In The United States

Before delving into a comparison between the construed patent claims and the accused devices, the court must address whether the SM 74 DI (manufactured by Heidelberg) and the Komori Press (manufactured by Komori) were actually used or sold in the United States. It is undisputed that both Heidelberg and Komori are foreign corporations. As discussed above, there is no competent evidence regarding the operation or sale of SM 74 DI in the United States; Presstek relies entirely on hearsay or evidence not properly before the court to support this foundation element of its case. *See* Section II.A.4, *supra*.

The Komori Press is a bit more complicated. The evidence in the record demonstrates that the Komori Press was at a printing press industry trade show in Chicago in 2000. Indeed, in his deposition, Palmer merely stated his belief that Komori wanted to get its press to the trade show, not what the press was going to do there or what Komori hoped to accomplish. Given the paucity of the

record, the court is unwilling to speculate about Komori's intent or what actually transpired. *See id.* The only firm evidence suggests that the Komori Press was at the trade show.[48] Simply showing the Komori Press at the trade show, however, is not enough to constitute direct infringement. *See Fluid Mgt. Ltd. Partnership v. H.E.R.O. Industries, Ltd.*, No. 95C5604, 1997 WL 112839, at * 4 (N.D. Ill. March 11, 1997) (citing cases); *see generally* Michael D. Kaminski & Lawrence M. Sung, *The Legal Significance Of Trade Show Activity Under United States Patent Law*, 76 J. Pat & Trademark Off. Soc'y 455, 447-453 (June 1994).

In an effort to overcome the lack of record evidence, Presstek argues that bringing the Komori Press to the United States for the trade show is an infringing act since it constitutes "importation." There is little established case law on how the "importation" of a product can constitute direct infringement within the context of 35 U.S.C. § 271(a). Presstek cites *Quantum Group, Inc. v. American Sensor, Inc*, for the proposition that "[i]mportation as a basis for direct infringement was . . . added to Section 271(a)." 48 U.S.P.Q.2d 1436, 1441 (N.D. Ill. 1998). Although this may be true, the *Quantum* court rested its statement, in part, on the fact that, "the claims of direct infringement by way of sale and of importation go hand in hand." *See id.* This case is entirely different – there is absolutely no evidence that Komori ever imported the Komori Press in the United States with the intent to sell it. The court, therefore, finds Presstek's argument unpersuasive.[49] Presstek's position is simply not supported by the case law it cites. Moreover,

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[48]Presstek appears to argue that Komori operated the press at the trade show (rather than merely displaying it for promotional purposes). Although operating or demonstrating the press may be enough to constitute an illegal use within the meaning of § 271, there is no evidence of this in the record.

[49]The court also believes that the language of 35 U.S.C. § 271(c) suggests that importation should be linked to some other activity. *See* 35 U.S.C. § 271(c) (creating

Presstek's argument might have the effect of limiting the trade show exception to direct infringement; foreign companies could become wary of bringing products into this country to display at trade shows if the mere act of crossing the border with them could result in a finding of direct infringement.

2. The Patents-In-Suit and The Accused Devices

As mentioned above, the court has already construed the contested claims of the patents-in-suit.[50] It has also described the accused products in general terms. *See* Section II.A.4, *supra*. In this section, the court will compare the accused devices to several previously construed claims of the '368 and '205 patents.[51] Since the court finds that the accused devices do not infringe either of the

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contributory infringement for "[w]hoever offers to sell or sells within the United States or imports [something] into the United States."). According to the language, it appears that the statute is targeting the purpose of importing the invention. *But see Bristol-Meyers Co. v. Erbamont, Inc*, 723 F. Supp. 1038. 1042-44 (D. Del. 1989) (concluding that "importation" and "import" in 35 U.S.C. § 271(g) "have their plain and ordinary meaning of bringing goods into the United States from another country"). Since the court's finding of no direct infringement is also based on other grounds, the court need not decide this issue now.

[50]At the trial, Presstek offered – and the court admitted – DTX 336-B and 337-B into evidence. The exhibits are claim charts of the patents-in-suit. After the trial, Presstek submitted "revised" exhibits of the claim charts (D.I. 184). The court will not accept the revised exhibits since they are not materially different than the "originals." The only difference between the original and the revised copy is that the former has a blacked out third column while the latter does not. Further, the court did not grant Presstek leave to submit the revised exhibits. At trial (and in opposition to the revision), Creo objected to the admission of the original exhibits on the ground that it never agreed to Presstek's interpretation of various claim terms that were not before the court at the *Markman* hearing. As a result, Creo argues, the court should not conclude that it agrees with the "unilateral" interpretation of undisputed terms. The court declines to address this issue. Given the court's decision regarding the claims clearly contested at the *Markman* hearing, the additional claims would not change the outcome of this case.

[51]Since both the SM 74 DI and the Komori Press contain the DOP System, the court will refer to the DOP System rather than to the individual products throughout this section of its memorandum opinion.

patents-in-suit, either literally or under the doctrine of equivalents, the court declines to find that Creo induced infringement. Although the court discusses several patent claims, a finding that the DOP System does not infringe one claim is sufficient for a finding of non-infringement.

a. The '368 Patent

(1) Claim 1, Paragraph c.i

Claim 1, paragraph c.i. of the '368 patent includes the phrase "a dot position look-up table for storing the x and y coordinates corresponding to substantially all dot positions on each plate." The court's *Markman* order provides that "Claim 1, paragraph c.i requires no construction beyond the claim language itself. The term 'dot position look up table' takes its ordinary meaning." For guidance, the court looks to the patent itself. The '368 patent abstract describes the dot position look-up table as that part of the controller which, "includes a dot-position look-up table for storing the x and y coordinates of substantially all dot positions on the plate." The '368 patent further describes the dot position look-up table as storing the dot positions on each plate which act as the "pedigree for each of the print stations." The '368 patent also describes the dot position look-up table as containing the dot pattern of each plate cylinder so that the locations of all dot positions of each plate are known. These positions on the plate are independent of the image data. The size of the dot position look-up table would need to be larger for a larger plate because there would be a larger number of dot positions. The dot position look-up table stores correction data, which is separate and apart from image data. Presstek contends that the DOP System violated this limitation in two ways (1) the geometric correction parameters and (2) the bitmap.

(a) Literal Infringement

As mentioned above, the DOP System includes five geometric correction parameters (main

scan shift, sub scan shift, main scan scale, sub scan scale, and track rotation). At trial, Presstek suggested that the DOP System file which stores the various geometric correction parameters meets limitation c.i. Rather than a table of values, Presstek asserts that the DOP System file is a series of algorithms which calculate the correction to be applied to each of the pixels of the image. Although this may be true, it is different than what the claim limitation requires. Unlike the claimed dot position look-up table, the number of the parameters in the DOP System does not change depending on the size of the printing plate.

Presstek also contends that the bitmap information in the DOP System meets this limitation. The facts prove the DOP System operates otherwise, however. The bitmap contains image information rather than plate information. As discussed earlier, the dot position look-up table in the '368 patent is the pedigree for each print station; it does not change for each different image. In contrast, the bitmap in the DOP System is not the pedigree for each print station; it changes with every image. Since the bitmap does not contain any dot positions for each plate, it certainly cannot contain "substantially all" the dot positions, as the claim limitation requires.

Because the DOP System does not have "a dot position look-up table for storing the x and y coordinates corresponding to substantially all dot positions on each plate" as required by claim 1 of the '368 patent, the accused devices do not literally infringe claim 1 of the '368 patent.

(b) Doctrine Of Equivalents

During trial, Presstek did not set forth with any specificity that the dot position look-up table limitation was met by the DOP System under the doctrine of equivalents. Nevertheless, the court

will construe its arguments as one of equivalents as well.[52]

Presstek appears to assert that the DOP System's use of a series of algorithms to calculate the correction to be applied to each of the pixels to be imaged is equivalent to the claimed dot position look-up table. According to Presstek, the use of an algorithm rather than a table is simply a "design choice." Upon examining the DOP System, the court concludes that it does not perform substantially the same function, in substantially the same way, to achieve substantially the same result (the "function-way-result test").

The "function" of the dot position look-up table limitation is set forth in the claim language as "storing the x and y coordinates corresponding to substantially all dot positions on each plate." The DOP System does not perform substantially the same function as required by this dot position look-up table limitation. The DOP System does not store the x and y coordinates corresponding to substantially all dot positions on each plate. The "way" that the dot position look-up table limitation is carried out is as a pedigree that contains dot positions of each plate cylinder. The DOP System does not store substantially all dot positions on each plate in memory. Instead, the DOP System includes five geometric correction parameters. The "result" of the dot position look-up table limitation is independent control of individual offending dots so that individual dots can be placed separately and independently of all the other dots.

Failure to prove any part of the function-way-result test results in non-infringement by equivalents. At trial, Presstek failed to convince the court that the series of algorithms stored in the

[52]The court is unclear whether Presstek's argument is one of literal or equivalent infringement. Having already discussed why the DOP System does not literally infringe the claim limitation, the court will also address the algorithm argument as one of equivalents. To the extent that Presstek maintains its position is also one of literal infringement, the court will include it by reference.

DOP System are equivalent to the claimed "dot position look-up table" since, in this specific context, an equation is not the same thing as a look-up table.[53] Thus, Presstek failed to meet any of the three prongs of equivalency (function-way-result). Not only does the DOP System and the claimed look-up table store different types of information, they do so in different ways. Thus, the DOP System does not equivalently infringe the claimed dot position look-up table limitation.

(2) Claim 1, Paragraph c.ii

Claim 1, paragraph c.ii of the '368 patent requires a "means for actuating." In its *Markman* order, the court interpreted the structure of the limitation to be "a computer or controller associated with the discharge source that simultaneously supplies an image signal and a dot-position to the writing head." *See* D.I. 64 at ¶ 8. Because this limitation is not met by the DOP System, this provides a second, independent reason for a finding of non-infringement of claim 1 of the '368 patent.

First, under the terms of the '368 patent, the dot position (the correction data) is obtained from the dot position look-up table and gets simultaneously supplied to the writing head with the image data. Because the DOP System does not have a dot position look-up table, it does not send a dot position to the writing head. Second, Presstek argues that the "image signal" is contained in

[53]Throughout the trial Presstek attempted to draw an analogy with a temperature table and equation for converting from Celsius to Fahrenheit. According to Presstek, the equation and the table are equivalent since one can be derived from the other. As Creo's software expert explained, however, such equations and tables are used for different purposes. The more complex the equation, the more computing speed and time, among other variables are required. At some point, a look-up table is preferable. Although Presstek asserts that the DOP System has sufficient computer speed to make a table and an equation equivalent, it did not sufficiently allay the court's concerns regarding the other variables. The court, therefore, concludes that in the context of the claimed dot-position look-up table, the DOP System's algorithms are not equivalent.

the stroke clock signal in the DOP System. The means for actuating limitation of claim 1 states that the image dots are formed "at selected one of said dot positions when said electronic signals are present." According to the court's previous *Markman* order, an "image signal" is an "electronic signal[] representing an original document." *See id.* In essence, Presstek argues that the stroke clock is the same as the bitmap in the DOP System. This cannot be the case since clock signal merely tells the writing head that it should change the values in the light valve so that the next stroke of pixels gets imaged; it does not contain any image information. The DOP System, therefore, does not meet this limitation of "a computer or controller associated with the discharge source that simultaneously supplies an image signal and a dot-position to the writing head." In addition, Presstek did not allege, or present any evidence, that the DOP System meets this limitation equivalently.

The remaining asserted claims of the '368 patent depend upon independent claim 1. Dependent claims contain all the limitations of the independent claim upon which they depend (plus others). Because the DOP System does not meet all the limitations of claim 1 of the '368 patent, it does not meet all the limitations of the asserted dependent claims.

(3) General Claim 1(c) Language

Claim 1 of the '368 patent (and each asserted dependent claim) also includes a limitation requiring a discharge source. In its *Markman* order, the court has defined the discharge source as a "digitally operated and controlled device utilizing lasers, electromagnetic radiation, electron beams, ink jet and/or spark technologies for altering the surface of a printing plate at selected points to form an image." *See id.* at ¶ 2. Because this limitation is not met by the DOP System, this provides a third independent reason why it does not infringe claim 1 of the '368 patent.

The claim language for each asserted claim also includes a limitation that the control means repeatedly actuates the discharge source momentarily based on various inputs. For a description of the '368 patent's controller for the spark discharge source, the '368 patent refers back to the '205 patent. This spark discharge controller "repeatedly actuates each discharge source momentarily" for each dot.

(a) Literal Infringement

As discussed above, the DOP System uses a laser diode and light valve assembly in the imaging head. Creo's imaging head does not operate in the manner described or claimed in the '368 patent. Because the laser diode in the DOP System is always on, it does not repeatedly actuate momentarily as required by limitation c(1) of claim 1. The light valve in the DOP System contains channels that "will pass or block light going to the plate." Apparently, there always some amount of light passing through the light valve (and hitting the plate). It is clear that the light valves (rather than the laser diode) control the amount of laser light passing through them. Thus, the DOP System does not literally meet this limitation of claim 1 of the '368 patent.

(b) Doctrine Of Equivalents

During trial Presstek did not allege, or present any evidence, that the "repeatedly actuate momentarily" limitation was met by Creo under the doctrine of equivalents. Nevertheless, the DOP System is substantially different and does not operate in substantially the same way as described or claimed in the '368 patent. In addition to a laser diode that is always on during imaging, the DOP System also uses a light valve containing up to 240 active channels which act as windows that open and close. Not only is the DOP System substantially different than the claimed invention, further differences concerning the result achieved using the DOP System were described at trial. These

differences included building an image with continuous lines instead of dots and faster imaging speed.

(4) The Asserted Dependent Claims of the '368 Patent

The remaining asserted claims of the '368 patent depend upon independent claim 1. As previously noted, dependent claims contain all the limitations of the independent claim upon which they depend (plus others). Because the DOP System does not meet all the limitations of claim 1 of the '368 patent, the DOP System does not meet all the limitations of the asserted dependent claims.

b. The '205 Patent

(1) Point-By-Point Correction

In its *Markman* order, the court construed the apparatus in claim 11 to require that the "controlling means" "have the ability to cause corrections to be effected on a point-by-point basis." *See* D.I. 65 at ¶ 4. Additionally, the court construed the method in claim 23 to require that the "controlling" step include the limitation of "requir[ing] the ability to control the discharges on a point-by-point basis." *See id.* at ¶ 7. Thus, the '205 patent describes point-by-point correction as independent control of the timing of the discharges from each imaging device.[54]

(a) Literal Infringement

i) The Five Geometric Correction Parameters

[54]In its papers, Presstek's objection to this statement is largely based on the operation of the DOP System, not on the construction of the patent itself. To the extent that Presstek is attempting to re-open the *Markman* proceedings, the court declines to do so since the court already heard – and decided – the issues raised.

As previously described, the DOP System includes five geometric correction parameters.[55] All five of these correction parameters cause uniform changes throughout the image. Presstek argues that these corrections allow the DOP System to correct on a point-by-point basis. According to Presstek, the ICE operates on a point-by-point basis to ensure that the corrections are applied to all points. The record, however, when examined in light of the court's claim construction, proves otherwise. The ICE does not meet the court's claim construction, nor does it independently control a point or a pixel in the image. There is nothing in the DOP System, including the ICE, that affects individual points independently of other points.

Presstek next argues that certain corrections in the DOP System are non-uniform. Non-uniform correction refers to the ability to correct some parts of an image more than others. The geometric correction parameters do not allow the DOP System to perform non-uniform corrections. Contrary to Presstek's assertions, since the entire set of swaths are rotated by the same amount in the DOP System, the plate rotation parameter makes linear, uniform changes by rotating the entire image.

Since the five geometric correction parameters used in the DOP System do not have the ability to cause corrections to be effected on a point-by-point basis or the ability to control the discharges on a point-by-point basis as required by claims 11 and 23 of the '205 patent, the DOP System's five geometric correction parameters do not literally meet the point-by-point limitation of claims 11 and 23.

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[55]The court has already discussed how these correction parameters operate in the DOP System. *See* Section II.A.4.a, *supra*. Suffice it to say, main scan shift and sub scan shift cause the entire image to be shifted to a different location on the plate. Main scan scale and sub scan scale stretch or shrink the entire image. The track rotation parameter allows the image to be rotated.

ii. The Center Frequency Calculation

The essence of Presstek's argument regarding the DOP System's CFC is that (1) its use of information from the previous rotation of the cylinder is predefined data within the meaning of the claim, (2) it corrects for the variations in the speed of the cylinder to properly image the printing plate, and (3) these corrections are non-linear.

According to the evidence in the record, the purpose of the CFC is to maintain uniform spacing of pixels on the printing plate regardless of changes in the speed of the cylinder. The CFC maintains constant imaging regardless of the speed of the rotating drum on which the imaging head is directed. To do this, the CFC is updated a fixed number of times during each cylinder rotation. Based on this calculation, the minimum number of points that can be affected at one time is over 50,000 points (240 points in the direction around the cylinder multiplied by 224 points along the axis of the cylinder). Thus, the CFC cannot correct on a "point-by-point" basis.

The record also reveals another reason why the CFC does not literally infringe the '205 patent. According to Presstek, the CFC is based on predefined parameters. As the court has already stated, the CFC is primarily driven by the speed of the cylinder. *See* note 11 & accompanying text, *supra*. Further, the CFC is not based on something that an operator enters onto a screen and it is not based on pre-defined offset data.[56] Thus, the DOP System does not infringe claim 11 of the '205 patent since it does not meet the construed limitation of claim 11 that requires "correction data defining predefined offsets to the image data."

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[56]The court does not agree with Presstek that the geometric correction parameters, the data stored in the tach history buffer, and the NTU buffer (all of which are used to calculate the stroke clock frequency) satisfy this requirement. *See* note 11, *supra*.

Because the DOP System does not have the ability to cause corrections to be effected on a point-by-point basis or the ability to control the discharges on a point-by-point basis as required by claims 11 and 23 of the '205 patent, it does not literally infringe claims 11 and 23.

(b) Doctrine of Equivalents

During trial Presstek did not allege, or present any evidence, that the point-by-point limitation of claims 11 and 23 of the '205 patent was met by an equivalent in the DOP System. Indeed, Presstek states that "[it] has not argued infringement under the doctrine of equivalents in view of the *Festo* decision." Presstek has reserved its rights to argue infringement under the doctrine of equivalents if the *Festo* decision is reversed by the Supreme Court. Given Presstek's explicit failure to assert the doctrine of equivalents on this issue at this point in the litigation – and the uncertain future of *Festo* – the court declines to make specific findings of fact regarding equivalency. Doing so would not only be unnecessary (Presstek has not asserted equivalents) but it might also be ultimately unhelpful (an affirmance of *Festo* would not change anything and material change to the doctrine of equivalents could require a different analysis, with different factual findings).

(2) Imaging Swaths

Both claims 11 and 23 of the '205 patent include the claim limitation "a series of axially sequential, circumferential imaging swaths." This limitation was added during prosecution of the patent to overcome a rejection based on the prior art. The court has construed this term to mean "a series of image swaths formed sequentially along the axis of the plate cylinder." *See* D.I. 65 at ¶ 5. The court discussed extensively this claim limitation in its previous memorandum opinion. *See Creo*, 2001 WL 637397, at *6-*11.

(a) Literal Infringement

The system disclosed in the '205 patent moves the imaging head in discrete steps parallel to the axis of the plate cylinder during the imaging process. The effect is that the image is created in rings around the cylinder. In contrast, the imaging head in the DOP System moves continuously along the axis of the plate cylinder as the cylinder rotates. This movement is the similar to that described in U.S. Patent No. 4,591,880 (the "Mituska reference") and can be generally described as akin to a typewriter with a continuously moving cylinder.[57] The image is created as a continuous helix as the plate rotates which, if laid flat, is angled.

The interpreted claim limitation also requires that "image swaths [are] formed sequentially along the axis of the plate cylinder." The DOP System does not form swaths sequentially. Instead, the helical swaths created by the DOP System are formed continuously; as the cylinder moves, the image is created. Because the DOP System does not form swaths sequentially as required by claims 11 and 23 of the '205 patent, it does not literally infringe claims 11 and 23.

(b) Doctrine Of Equivalents

Presstek does not asset that the DOP System infringes this limitation under a the doctrine of equivalents. The court, therefore, need not address this issue at this time. The court, however, wishes to complete the record on this issue. In its previous memorandum opinion, the court stated that Presstek "is estopped from using the doctrine of equivalents as to the movement of the cylinder vis á via the imaging head since Presstek explicitly disclaimed the movement associated with the Mituska reference." *See id.* at *11. According to Presstek, the patent prosecution shows that it

[57]At the summary judgment stage, the court declined to find that the movement of the imaging head and the cylinder in DOP System was the same as in the Mituska reference since it found the presence of a genuine issue of material fact. *See id* at *6. The trial record, however, provides sufficient additional evidence for the court to conclude the Mituska reference and the DOP System operate the same way vis á vis the movement of the imaging head and the cylinder.

disclaimed the axial movement of the imaging head which was disclosed in the Lewis '075 patent and which both Presstek and the P.T.O. Examiner believed was associated with the Mituska reference. Creo did not object to this statement in its post trial submissions. The court agrees with Presstek's reading of the prosecution history and, to the extent that its previous memorandum opinion contradicts this fact, it is overruled. Since the court is no longer presented with the doctrine of equivalents argument, however, it declines to detail the rationale for its position.

(3) Series Of Circumferentially Spaced Apart Image Spots

Both claims 11 and 23 of the '205 patent include the limitation "each swath comprising a series of circumferentially spaced-apart image spots." The parties did not ask the court to construe this part of the claim limitation at the *Markman* hearing. The court, therefore, did not do so. Similarly, no expert opined on this aspect of the claim limitation either in a report or at trial.

The '205 patent describes this limitation as spots placed on the plate with an imaging head that is made up of electrodes "arranged along a 'diagonal'" in the "circumferential direction" with respect to the plate cylinder. Presstek did not present any evidence that the DOP System meets this limitation. Creo objected when Presstek attempted to elicit expert testimony on this limitation. The objection was sustained and that portion of the record was struck to the extent that Presstek's expert opined on this limitation. The court sustained a similar Creo objection with respect to claim 23. Thus, there is insufficient evidence on the record for the court to conclude that the DOP System operates either literally or equivalently as the asserted claim limitation.

(4) The Asserted Dependent Claims of the '205 Patent

The remaining asserted claims of the '205 patent are dependent claims from independent

claims 11 and 23. Again, as previously noted, dependent claims contain all the limitations of the independent claim upon which they depend (plus others). Because the DOP System does not meet all the limitations of claims 11 or 23 of the '205 patent, it does not meet all the limitations of any of the asserted dependent claims.

IV. ATTORNEYS' FEES

Creo has requested that the court award it attorneys' fees pursuant to 35 U.S.C. § 285. *See* 35 U.S.C. § 285 (stating that court may award reasonable attorneys' fees to prevailing party in exceptional cases). The prevailing party must prove the exceptional nature of the case by clear and convincing evidence. *See Carroll Touch Inc. v. Electro Mech. Sys., Inc*., 15 F.3d 1573, 1584 (Fed. Cir.1993). In assessing whether a case is exceptional, the court should consider all the circumstances, including both parties' conduct during the case. *See Brooktree Corp. v. AMD, Inc*., 977 F.2d 1555, 1582 (Fed. Cir. 1992). In determining the amount of fees to be awarded, the court must take into account the extent to which the patentee, having lost with respect to several of the accused products, can be considered the prevailing party in the action. *See Slimfold Mfg. Co. v. Kinkead Inds., Inc.*, 932 F.2d 1453, 1459 (Fed. Cir. 1991). Only if a court finds that a prevailing party satisfies its burden of proving an exceptional case does it determine whether to award attorney fees. *See Pharmacia & Upjohn Co. v. Mylan Pharms., Inc.*, 182 F.3d 1356, 1359 (Fed. Cir. 1999).

The basis of Creo's request is twofold. First, Creo argues that "Presstek pursued its infringement claims in spite of the [c]ourt's construction of the patents which, based on undisputed facts, requir[ed] a finding of non infringement." *See* Creo PPFL, at 67. Second, Creo maintains that Presstek's actions both before and during trial make this case exceptional. *See id.* at 68-69. After a careful review of the record – from the beginning of this case until the present – the court does not

believe that this case is exceptional within the meaning of 35 U.S.C. § 285. In any event, given the court's decision, the court would decline, in the exercise of its discretion, to award Creo attorneys' fees. The court will briefly explain its reasoning.

First, although Creo is correct that the accused products do not infringe the patents-in-suit, the court does not believe this conclusion is manifestly obvious from the claims of the '368 and '205 patents. As is evidenced by this memorandum opinion, the court had to carefully compare the patent claims and the DOP System, looking for small differences. Second, it was Creo, not Presstek, who instituted this action and sought a declaratory judgment of non-infringement. To now argue that Presstek forced Creo to undergo the costs of litigation is to turn the facts on its head; Presstek's infringement claim was nothing more than the mirror image of Creo's declaratory judgment claim. Third, the court has already addressed Presstek's conduct at several points during this case. To do so again would be undue and unfair.

V. CONCLUSION

For the reasons set forth above, the court finds that (1) the '368 and '205 patents are valid and enforceable and (2) Creo has not induced infringement of the patents-in-suit by supplying its DOP System to Heidelberg and Komori for inclusion in the SM 74 DI and the Komori Press. Further, the court declines to award Creo reasonable attorneys' fees. The court will issue an appropriate order in conjunction with this memorandum opinion.

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

CREO PRODUCTS INC.,	)	
Plaintiff,	)	
v.	)	C.A. No. 99-525-GMS
PRESSTEK, INC.,	)	
Defendant.	)	
PRESSTEK, INC.,	)	
Counterclaim Plaintiff,	)	
v.	)	
CREO PRODUCTS, INC.,	)	
Counterclaim Defendant.	)	

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MEMORANDUM OPINION

September 11, 2001
Wilmington, Delaware

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

CREO PRODUCTS INC.,	)	
	)	
Plaintiff,	)	
	)	
v.	)	C.A. No. 99-525-GMS
	)	
PRESSTEK, INC.,	)	
	)	
Defendant.	)	
	)	
PRESSTEK, INC.,	)	
	)	
Counterclaim Plaintiff,	)	
	)	
v.	)	
	)	
CREO PRODUCTS, INC.,	)	
	)	
Counterclaim Defendant.	)	

ORDER

For the reasons stated in the court's Memorandum Opinion of the same date, IT IS HEREBY ORDERED that:[58]

1. Creo's motion for summary judgment on impermissible claim broadening of the '368 patent (D.I. 92) is DENIED.

2. The responses of Creo and Presstek to objections to proposed findings of fact and conclusions of law (D.I. 188 and 190) are STRICKEN from the record.

3. Judgment BE AND IS HEREBY ENTERED in favor of Presstek on Creo's declaratory judgement claim that the '368 and '205 patents are invalid and unenforceable.

4. Judgment BE AND IS HEREBY ENTERED in favor of Creo on its declaratory

[58]Because of the existence of mirror image declaratory judgment claims and counterclaims, an entry of judgment on one claim necessarily means a denial of the opposite claim.

judgment claim that it is not inducing infringement of the '368 and '205 patents by supplying the DOP System for inclusion in the SM 74 DI and the Komori Press.

5. Creo's request for reasonable attorneys' fees pursuant to 35 U.S.C. § 385 is DENIED.

6. Each party is to bear its own costs.

Dated: September 11, 2001

Gregory M. Sleet
UNITED STATES DISTRICT JUDGE