

United States District Court,
D. New Jersey.

RICOH CORPORATION, et al,
Plaintiffs/Counter Defendants.

v.

PITNEY BOWES, INC,
Defendant/Counterclaimant.

No. Civ. 02-5639(GEB)

April 21, 2006.

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Court-Filed Expert Resumes

MARKMAN OPINION

BROWN, C.J.:

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INTRODUCTION

This matter comes before the Court upon the parties' request for claim construction in this patent infringement action. On November 26, 2002, Plaintiffs Ricoh Corporation and Ricoh Company, Ltd. (collectively referred to as "Ricoh") brought suit against Pitney Bowes Inc. ("Pitney") alleging, *inter alia*, infringement of U.S. Patent Nos. 5,537,554 (the " '554 Patent"), 5,544,289 (the " '289 Patent"), 5,568,618 (the " '618 Patent"), 5,649,120 (the " '120 Patent") and 5,774,678 (the " '678 Patent") (collectively referred to as the "Motoyama Patents"). FN1 On April 26, 2004, Pitney filed a Third Amended Answer denying allegations of infringement and asserting counterclaims against Ricoh. Pitney seeks a declaratory judgment of noninfringement, invalidity and unenforceability of the Motoyama Patents.

FN1. The case was initially assigned to the Newark vicinage. On December 6, 2005, the matter was reassigned to Chief Judge Garrett E. Brown, Jr. in Trenton.

On July 2, 2004, Ricoh filed its Opening Claim Construction Brief ("Ricoh Br.") with the Court. On August 6, 2004, Pitney filed its response ("Pitney Br.") and Ricoh replied on September 10, 2004 ("Ricoh Reply"). Pursuant to this Court's instruction, the parties submitted a Joint Claim Construction Chart on January 11, 2006, which identified the disputed claim terms, the parties' proposed constructions, as well as stipulated claim constructions. The Court conducted a *Markman* hearing on February 15, 2006.

BACKGROUND

The Motoyama Patents derive from a patent chain that dates back to 1990. Each patent issued from a continuation application which claimed priority to the July 6, 1990 filing date of U.S. Patent Application Serial No. 07/549,278. The '278 application ultimately issued as U.S. Patent No. 5,412,779 (the " '779 Patent"). The specification of all five patents are virtually identical.

The subject matter of the patents-in-suit relates to business office devices such as printers, copiers, and facsimiles. The patents claim "a method and apparatus for communicating and controlling various types of business office equipment or devices transparently and uniformly." '554 Patent, col. 1, ll. 13-15. The conventional method of developing stand-alone business office devices involved software development which was limited to one model and unable to be used with other device models. The Motoyama Patents recognize that this conventional method ignores the "reusability of software across different models." *Id.* col. 1, ll. 35-38. The patents explain that this was a critical oversight in light of a shortage of software engineers. *Id.* col. 1, ll. 44-46.

The claimed inventions of the Motoyama Patents attempt to solve this problem by providing a "means and corresponding method to communicate and control various modules of a device across models and products." *Id.* col. 1, ll. 50-52. By achieving this objective, customers and field service groups could "support diagnostic and maintenance activities with one intelligent system, rather than having different systems for various products." *Id.* col. 1, ll. 55-58. Moreover, product development cycles can be shortened since engineers could start "developing modules using existing devices rather than waiting for a target device to be developed." *Id.* col. 1, ll. 49-55.

DISCUSSION

I. Law of Claim Construction

The first step in a patent infringement analysis is to define the meaning and scope of the claims of the patent. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed.Cir.1995) (*en banc*), *aff'd*, 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). Claim construction, which serves this purpose, is a matter of law exclusively for the court. *Id.* at 979. The Federal Circuit recently clarified the proper methodology for claim construction in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed.Cir.2005). The court stated that the claims of a patent serve as the proper starting point, noting the "bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude." *Id.* at 1312 (citing *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed.Cir.2004) (quotations omitted)). The court articulated that words should generally be given their ordinary and customary meaning-particularly from the vantage point of a person of ordinary skill in the art. *Phillips*, 415 F.3d at 1313. This provides an objective baseline from which claim construction should begin. *Id.*

Significantly, the Federal Circuit further noted that a "person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." *Id.* In attempting to discern the meaning of claim terms, the court identified various sources from which the proper meaning may be determined. The claim in which the term appears and other claims of a patent, including both asserted and unasserted claims, can serve as "valuable sources of enlightenment as to the meaning of the claim term." *Id.* at 1314.

The court also emphasized the primacy of the specification in a claim construction analysis, noting that it is usually dispositive and "the single best guide to the meaning of a disputed term." *Id.* at 1315. The specification may reveal whether the patentee acted as his own lexicographer by importing a special definition to the claim term-in which case, the patentee's lexicography governs. *Id.* at 1316. Moreover, the specification can further reveal any intentional disavowal or disclaimer of claim scope. In such instances, "the inventor has dictated the correct claim scope, and the inventor's intention, as expressed in the specification, is regarded as dispositive." *Id.*

The prosecution history should also be taken into consideration if in evidence. Consisting of the complete record of the Patent and Trademark Office ("PTO") proceedings, "the prosecution history provides evidence of how the PTO and the inventor understood the patent." *Id.* at 1317. Unlike the specification, however,

which represents the final product of ongoing negotiations between the PTO and the patentee, the prosecution history may lack clarity and serve as a less helpful tool in claim construction. *Id.* Nonetheless, this part of the intrinsic evidence "can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." *Id.*

The Federal Circuit cautioned against the use of extrinsic evidence during claim construction since this type of evidence suffers from certain inherent flaws which affect its reliability in a claim construction analysis. This class of evidence includes "all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises." *Id.* at 1317 (quoting *Markman*, 52 F.3d at 980). Although extrinsic evidence may be useful, "it is unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence." *Id.* at 1319. A court nonetheless is permitted to admit and use extrinsic evidence in its sound discretion, so long as the court remains mindful of the inherent flaws in this type of evidence and considers it accordingly. *Id.*

Phillips also clarified the role of dictionaries in claim construction. Placing undue reliance on dictionaries would improperly focus "the inquiry on the abstract meaning of words rather than on the meaning of claim terms within the context of the patent." *Id.* at 1321. The "ordinary meaning" of the claim term is properly viewed as the "meaning to the ordinary artisan after reading the entire patent." *Id.* Moreover, dictionaries are naturally suspect as they "provide an expansive array of definitions" and often collect all uses of a word "from the common to the obscure." *Id.* This may result in extending "patent protection beyond what should properly be afforded by the inventor's patent." *Id.* at 1322. Despite such concerns, however, courts are not precluded from using dictionaries in the appropriate manner during claim construction analysis. *Id.*

Lastly, the court must be mindful of the well-settled rule "that while proper claim construction requires an examination of the written description and relevant prosecution history to determine the meaning of claim limitations, additional limitations may not be read into the claims." *Storage Tech. Corp. v. Cisco Sys., Inc.*, 329 F.3d 823, 831 (Fed.Cir.2003); *see also In re Donaldson Co.*, 16 F.3d 1189, 1195 (Fed.Cir.1994) (noting the "general claim construction principle that limitations found only in the specification of a patent or patent application should not be imported or read into a claim.").

II. The Disputed Claim Terms

In the jointly submitted claim construction chart, the parties identified a total of thirty-four disputed claim terms. The parties agree that seventeen of these terms are means-plus-function limitations governed by 35 U.S.C. s. 112 para. 6. The parties represented at the *Markman* hearing that the terms which do not fall under s. 112 para. 6 can be categorized into five categories—each category representing one of the five overarching disputed claim construction issues in this case. The Court will address each of these issues in turn.

A. Whether the Claims Require Physical Separation Between Certain Elements

The first category involves seven claim terms identified in the claim construction chart. The contested issue is whether these claim terms require physical separation between certain elements recited in the claim. Pitney's proposed constructions for these claim terms include the limitation that the relevant elements are physically apart from each other or exist in external housings. Ricoh argues that the claim terms should not be defined by their physical configurations. According to Ricoh, the invention is about the "modular design with intelligent modules that can communicate with one another intelligently," as opposed to particular hardware embodiments. (Tr. of *Markman* Hr'g at 22:8-12).

1. "office machine system"

The first disputed term in this category is "office machine system" which appears in Claims 57 to 60 of the '554 Patent. In line with Ricoh's position described above, Ricoh offers the following construction for

"office machine system."

A modular business device that includes an intelligent engine that has its own microprocessor and its own communication capability that enables it to communicate with other modules of the office machine system or with other devices. Each module of the office machine system has its own microprocessor and its own interface unit. The intelligent modules communicate with each other using an intelligent protocol. Moreover, the modularity of the office machine system allows interchangeability of modules between models and products. The engine of the office machine system carries out the mechanical operations of the office machine system.

(Chart at 1). In sharp contrast, Pitney contends that the term should be construed as "[a] business office device, such as a copier, printer or facsimile, *connected to but separate from an external operation panel.*" (Id.) (emphasis added).

Based on the parties' proposed constructions, the parties clearly dispute more than the "physical separation" issue. Rather, the parties disagree on the basic definition for the term. The Court first notes the parties' agreement that the "office machine system" includes the copier engine 10 and the operation panel 20 in Figures 1 and 2 of the patent. (Chart at 1). This part of the construction finds support in the prosecution history of the '554 Patent wherein the inventor stated: "Claim 14 does not recite a copier machine but generically recites a business office machine system. Such a system corresponds to elements 10 and 20 illustrated in Figures 1 and 2." ('554 Prosecution History, Apr. 24, 1995, Prelim. Amendment at 16).

The written description, however, clarifies that element 10 is not limited to a copier engine. Specifically, in describing Figure 1, the written description provides:

FIG. 1 illustrates a preferred embodiment of the present invention including a *copier engine 10*, operation panel 20, and remote diagnostic station 30. However, the present invention is *not limited to copier devices, and can be applied to other business equipment devices, such as a printer or facsimile*, which has means which are described below.

In the following illustration, the *target device* in FIG. 1 is a copier engine 10. The *target device 10* includes means to store Static State Data 107, which does not change over the life of the device, such as the model number, serial number, model characteristics and the like.

'554 Patent, col. 2, ll. 39-53 (emphases added). In this excerpt, the inventor uses the terms "copier engine," "business equipment device," and "target device" interchangeably. As such, the patent provides that the "office machine system" is not limited to a copier engine, but generally includes a "business equipment device" or "target device." The first part of Pitney's proposed construction reflects this conclusion.

Turning to the additional limitation that the business office device is "connected to but separate from" the operation panel, Pitney argues that the intrinsic evidence mandates this conclusion. In contrast, Ricoh contends that the term "office machine system," when read in the proper context of the specification, "does not require the operational panel to be physically apart from the business office device.

The Court finds Pitney's argument to be more persuasive. Figures 1 and 2 of the '554 Patent illustrate that the business office device, in this case a copier, and the operation panel are separate components of the system. These figures further illustrate that the operation panel and the business office device are connected by a communication media line 12. Moreover, in both the Abstract and the written description, the patentee describes the present invention as one that allows "an *external* device or devices to access the state of the target device(s), to communicate with the target device(s) and to control the target device(s)." '554 Patent, col. 1, ll. 60-64 (emphasis added); *see id.*, Abstract ("The present invention communicates and controls various modules of business devices which allow an *external* device such as an operation panel to access

the state of a target device, such as a copier, printer or facsimile.") (emphasis added). Thus, the patentee used the specific term "external" to describe the system. This indicates that the operation panel is separate from, or external to, the target device and connected by a communication line which accords with Pitney's proposed construction.

Ricoh argues that the prosecution history of the '554 Patent actually provides support for its position that the claim does not require physical separation between the operation terminal and the target device. (Tr. of *Markman* Hr'g at 29:14-30:12). Based on an examination of the '554 Patent prosecution history, however, Ricoh misreads the patentee's statements. During prosecution, the patentee sought allowance for a number of claims, including Application Claims 39 and 40. FN2 ('554 Patent Prosecution History, Sept. 13, 1995 Amendment at 2-4). Although the Examiner initially allowed these claims, he subsequently withdrew the allowance in light of the parent application which issued as the '779 Patent, another patent owned by the patentee. (*Id.*, Oct. 18, 1995 Examiner's Action at 1; Jan. 4, 1996 Examiner's Action at 1-2). The Examiner concluded that Application Claims 39 and 40 of the '554 Patent application claimed the same invention as Claims 32 and 33 of the '779 Patent, and thus rejected the application claims on double patenting grounds. (*Id.*, Jan. 4, 1996 Examiner's Action at 2). In response to the rejection, the patentee argued that the subject matter of the claims were not identical. (*Id.*, Feb. 1, 1996 Response at 1-3).

FN2. Application Claims 39 and 40 initially depended on Claim 37 which was rejected on anticipation grounds. (*Id.*, July 26, 1995 Examiner's Action at 3). The claims were subsequently amended as independent method claims. (*Id.*, Sept. 13, 1995 Amendment at 2-4).

Further, application Claims 39 and 40 ... recite communication between an office device and a *remote terminal*. A remote terminal must be remote from the office device. To the contrary, patent Claim 32 [of the '779 Patent] recites communication between an office device and an *operation terminal*. There is no requirement in patent Claim 32 for the operation terminal to be remote from the office device. It may be possible for the operation terminal to be mounted *within the same housing* as the office device and therefore, the operation terminal will not be remote from the office device. To the contrary, application Claims 39 and 40 *require a remote terminal* and not simply an operation terminal and this is a clear difference between the claims. FN3

FN3. These claims were ultimately allowed and issued as Claims 1 and 5 of the '554 Patent. (*Id.*, Apr. 1, 1996 Notice of Allowability at 1-3).

(*Id.* at 6) (emphasis added and in original).

At the hearing, Ricoh relied on these statements in asserting that the patentee did not intend to require a remote operation panel. (Tr. of *Markman* Hr'g at 30:6-8) ("The examiner in that case said, well, the operation panel needs to be remote, and Ricoh said, no, it either could be remote, or it couldn't be remote."). The Court disagrees with Ricoh's interpretation of these statements. These statements during prosecution clearly reveal the patentee's intent that the operation panel "must be remote from the office device," or more specifically, that Claims 39 and 40 of the '554 Patent application must include a remote terminal that is not housed or mounted in the same housing as the office device—a feature that was not claimed in the previously issued '779 Patent. As such, the Court rejects Ricoh's argument, and concludes that the '554 Patent prosecution history provides additional support for the conclusion that the claim requires physical separation between the business office device and the operation panel.

Ricoh also argues that Pitney's construction should not be adopted because it fails to capture the essence of the claimed invention. Ricoh, however, fails to convince the Court that the patentee intended to include all of the limitations appearing in Ricoh's rather lengthy proposed construction. Although Ricoh's construction may generally describe the invention, the Court does not find, nor does Ricoh provide, a basis for

interpreting the specific term "office machine system" in the manner urged by Ricoh.

In contrast, the Court finds clear support in the intrinsic evidence for Pitney's proposed construction as discussed above. Consequently, the Court adopts Pitney's construction as it reflects an appropriate interpretation of the claim term. Accordingly, "office machine system" means "[a] business office device, such as a copier, printer or facsimile, connected to but separate from an external operation panel."

2. "*diagnostic processor*"

The next disputed term in this category appears in Claims 57 and 58 of the '554 Patent. Ricoh contends that "diagnostic processor" should be construed as:

[A]n intelligent device for communicating with and diagnosing the operation of the office machine system. A diagnostic processor is not part of the office machine system. It includes a microprocessor and a communication capability for communicating with the modular office machine system that itself includes intelligent modules that can interact with the diagnostic processor. The intelligent modules of the office machine system and the diagnostic processor each make use of intelligent communication protocols. These intelligent protocols allow the diagnostic processor to communicate with a variety of models and products.

(Chart at 3). Pitney offers the following construction:

The diagnostic processor is part of the Remote Diagnostic Station, which is remotely located from the office machine system. It communicates interactively with the office machine system, via a communication line, to process data and then diagnose the office machine system. The diagnostic processor is not a passive system or a data collection site.

(*Id.*). Based on these constructions, the parties agree that the "diagnostic processor" is a device that communicates with the "office machine system," but is not part of the "office machine system." This much is clear from the plain language of the claim. In particular, Claim 57 recites:

A system, comprising:

an office machine system communicating with a first end of a communication line ...; and

a *diagnostic processor*, connected to a second end of said communication line, which processes said state data received from said office machine system to diagnose an operation of the office machine system and to communicate interactively with the office machine system

wherein:

said *diagnostic processor* includes means for sending a command from the *diagnostic processor* to the office machine system over the communication line which initiates a diagnostic operation in the office machine system; and

data is transmitted from the office machine system to the diagnostic processor over the communication line after the diagnostic operation is initiated.

'554 Patent, Claim 57 (emphases added). Thus, the claim language reveals that two separate elements, i.e., the office machine system and the diagnostic processor, comprise the claimed system.

The Court further finds that a number of limitations contained in Pitney's proposed construction find support directly in the claim language and will therefore adopt them. This includes the limitation that the "diagnostic

processor" interactively communicates with the "office machine system" via a communication line to which it is connected. Id. The claim further specifies that the "diagnostic processor" receives and processes state data from the "office machine system," which is then used to diagnose an operation of the "office machine system." FN4 Id. Additional support is also found in the written description to include these limitations. Specifically, the written description provides that "Diagnostic Process 302 is an intelligent process which can communicate interactively with the Copier Engine 10 based upon the responses it receives and data accumulated in the Data Base 303." '554 Patent, col. 3, ll. 33-36. Consequently, the Court will include these limitations in its construction.

FN4. The parties agree that "state data" means "[a]ny one of static state data, semi-static state data, and dynamic state data." (Tr. of *Markman* Hr'g at 49:4-11).

Turning to the remainder of Pitney's proposed construction, the Court will now determine whether the "diagnostic processor" is remotely located from the office machine system. Pitney argues that it is, relying on Figures 1 and 2 of the patent, the patent's Abstract, and the prosecution history. As it contended with regard to the previous claim term, Ricoh argues that there is no basis to import the additional limitation that the diagnostic processor is remotely located from the office machine system.

Based on the intrinsic evidence, the Court concludes that Pitney again has the stronger argument. The intrinsic evidence supports the conclusion that the patentee intended the diagnostic processor to be remotely located from the office machine system. Notably, during prosecution the patentee represented to the PTO that "[t]he limitations recited in Claim 64 reciting that the diagnostic processor is located in a diagnostic station which is *remote* from said office machine system is supported by Figures 1 and 2." ('554 Patent Prosecution History, Sept. 13, 1995 Amendment at 24) (emphasis added). Figures 1 and 2 depict the Diagnostic Process 302 as part of the Remote Diagnostic Station 30 which is remotely located from the Copier Engine 10. '554 Patent, Figs. 1 & 2. The patent's Abstract also reflects this construction. *See id.*, Abstract ("a *remote* diagnostics station can provide *remote* diagnostics of the target device.") (emphases added).

Other aspects of the prosecution history provide additional support for this construction. During prosecution, the Examiner rejected Application Claim 64 on grounds of obviousness-type double patenting in light of Claim 29 of the '779 Patent. The Examiner explained that although Claim 29 itself did not indicate that the diagnostic processor is remotely located from the office device, the claim in combination with the specification would yield an "obvious variation of the patented claim." ('554 Patent Prosecution History, Jan. 4, 1996 Examiner's Action at 6). In particular, the Examiner stated that it would have been obvious "to locate the diagnostic processor in a remote location as shown in [F]igs. 1 and 2 of the patent," implicitly stating that the Application Claim 64 of the '554 Patent application requires a remote location. (*Id.* at 7). To overcome the double patenting rejection, the patentee filed a terminal disclaimer. ('554 Patent Prosecution History, Feb. 1, 1996 Response at 13). Although the patentee noted that he did not agree with the rejection, he did not argue that the Examiner was incorrect in concluding that the claim requires a remote diagnostic processor. As such, this part of the prosecution history provides additional support for the conclusion that the diagnostic processor is located in a remote location.

At another point during prosecution of the patent, the Examiner rejected original claims 43 and 47 because the term "remote terminal" lacked proper antecedent basis. The patentee amended the claim by replacing the term "remote terminal" with "diagnostic processor." The Court finds this to be yet another indication in the intrinsic evidence that the patentee intended that the "diagnostic processor" be remotely located from the office machine system. ('554 Patent Prosecution History, Apr. 24, 1995 Prelim. Amendment at 11-12; July 26, 1995 Examiner's Action at 2; Sept. 13, 1995 Amendment at 5-7, 23). In light of these conclusions, the Court will include this limitation in its construction.

Lastly, Pitney further seeks to include the limitation that "the diagnostic processor is not a passive system or a data collection site." (Chart at 3). Pitney argues that the patentee disclaimed this type of diagnostic processor during prosecution of the '779 Patent in an effort to overcome a rejection based on the Weinberger reference. The prosecution history reveals that the patentee described the invention of the Weinberger reference as a "passive system which gathers specific information regarding the devices associated with a remote terminal." ('779 Patent Prosecution History, May 4, 1993 Amendment at 3). Thus, Pitney argues that Ricoh cannot now attempt to reclaim this subject matter. In response, Ricoh asserts that patentee's statements regarding the Weinberger reference were not characterizations of the invention "that uses words of manifest exclusion or restriction representing a clear disavowal of claim scope that is required in order [to] give rise to a prosecution disclaimer." (Ricoch Reply at 12 n.5).

It is well-settled that "the prosecution history may not be used to infer the intentional narrowing of a claim absent the applicant's clear disavowal of claim coverage." *SuperGuide Corp. v. DirecTV Enters., Inc.*, 358 F.3d 870, 875 (Fed.Cir.2004) (citations and quotations omitted). "To be given effect, such a disclaimer must be made with reasonable clarity and deliberateness." *Id.* In this instance, the Court agrees with Ricoh that the patentee did not clearly and deliberately disclaim the claim scope at issue. The patentee distinguished its invention over the Weinberger reference by stating that the reference only used one-way communication between the data top to the translator.FN5 Moreover, the patentee argued that the Weinberger reference did not "show exchanges of data between the office device and operation terminal." *Id.* The patentee further stated that his invention "includes office equipment that store static, dynamic and control information and communicates the data to a remote location which includes an operation terminal that processes the information." *Id.* The Court finds, however, that the patentee's arguments did not clearly disavow claim scope with respect to the diagnostic processor, as it fails to specifically reference this term. Rather, the patentee's arguments were focused on the operation terminal. Thus, the Court concludes that importing this limitation is unwarranted in light of the prosecution history.

FN5. The data top was described as the device "which transmits signals applied to the display on control panel 12 to the translator." ('779 Prosecution History, May 4, 1993 Amendment at 2).

With regard to Ricoh's proposed construction, the Court again finds that Ricoh's construction fails to accurately define the "diagnostic processor." Rather, it provides a general description of one aspect of the invention. The Court finds Pitney's construction, except for the last limitation, to be a more appropriate interpretation of this specific term because it is clearly supported by the intrinsic evidence. Consequently, the Court will adopt Pitney's construction in part. Accordingly, the "diagnostic processor" is part of the Remote Diagnostic Station, which is remotely located from the office machine system and communicates interactively with the office machine system, via a communication line, to process data and then diagnose the office machine system.

3. "separate from"/"the operation terminal which is separate from the business office device and connected to the business office device"/"separate device"

The next disputed claim terms concern the meaning of "separate" in the context of the patents. These terms appear in various claims of the '289 and '120 Patents. (Chart at 15-17). Claims 62, 68, 69 and 72 of the '289 Patent recite that the operation terminal is "separate from" the business office device. The relevant claims of the '120 Patent recites either a "separate device" or a computer that is "separate from" the business office device. *See e.g.*, '120 Patent, Claims 1, 16 & 126. The parties agree that these variations of the claim term "separate" should be construed in the same way. (Chart at 17).

Ricoh argues that "[a] module of an office machine system is separate from another module if it has its own intelligence and communication capability and is an interchangeable module." (*Id.* at 15). Ricoh further argues that the "intelligent modules communicate by using an intelligent communication protocol." (*Id.*).

Pitney asserts that the operation terminal and the business office device are "physically apart" from each other and are only connected by a communication line. (Id.). Pitney also contends that a "separate device" means "[a] device that is external or apart from another device during operation, but connected to the external device by a communication line." (Id. at 17).

Again, this Court must determine whether the claim term requires "physical separation" between the devices. Ricoh offers a construction analogous to the one offered for "office machine system"-that is, one focused on the modular communication between the devices. Ricoh relies on various portions of the '289 Patent specification and the prosecution histories of the '779, '554 and '289 Patents in support of its construction.

Pitney likewise offers an analogous construction which emphasizes the physical configuration of the invention. Pitney relies on the plain language of the claims of the '289 Patent and '120 Patents. For example, Claims 62 reads:

A system, comprising:

a business office device including:

a memory which stores state data of the business office device;

a transmitting device which transmits the state data out of the business office device;

a receiving device which receives commands; and

an engine for performing mechanical functions within the business office device,

an operation terminal, separate from the business office device and connected to the business office device
....

'289 Patent, Claim 62. Additionally, Pitney relies on similar intrinsic evidence that it relied on in support of its construction of "office machine system."

Consistent with this Court's analysis and conclusion regarding "office machine system," and based on the plain meaning of the word "separate" which suggests distance between the elements, the Court concludes that these disputed claim terms also require physical separation between the devices. The Court does not find, nor does Ricoh provide, sufficient support that would lead this Court to a different conclusion. Since Pitney's construction best supports this interpretation, the Court adopts it. Accordingly, the term "separate" in the context of the relevant claims requires "physical separation."

4. "computer"

The parties dispute the construction of "computer" which appears in various claims of the '289, '120 and '678 Patents. Pitney contends that a "computer" refers to "either the external operation panel or the remote diagnostic station." (Chart at 22). Pitney bases its construction on the claim language which Pitney asserts differentiates between a computer and a business office device. Pitney also relies on Figure 1 of the '289 Patent which depicts the Remote Diagnostic Station and the Operation Panel as two other elements of the system which exist in addition to the business office device. In contrast, Ricoh offers a technical dictionary definition for "computer" as its proposed construction and argues that Pitney's construction impermissibly imports limitations from the specification.

As a preliminary matter, the Court notes that the written description, which fails to even mention the term

"computer," provides minimal guidance as to how this term should be interpreted. Moreover, the parties do not identify any portions of the prosecution history that would provide insight into the proper construction. Thus, the Court is left with the plain language of the claim which supports Pitney's construction that the "computer" must be something other than the business office device.

Claim 1 of the '289 Patent reads:

A method, comprising the steps of:

storing semi-static state data in a business office device, the semi-static state data including data which may change infrequently over a life of the business office device;

initiating communication *between the business office device and a computer*, by the business office;

transmitting the semi-static state data from the business office device to the computer; and

receiving the semi-static state data by the computer.

'289 Patent, Claim 1. Additionally, the Court agrees with Pitney that the specification, and Figures 1 and 2 in particular, indicate that the business office device communicates with an external operation panel and diagnostic processor. Thus, the Court accepts Pitney's proposed construction.

The Court rejects Ricoh's construction as it fails to take into account these conclusions drawn from the claim language and instead represents a detached dictionary definition which is based on extrinsic evidence. *See* Phillips, 415 F.3d at 1317 (noting that intrinsic evidence, such as the claims themselves, is more reliable in claim construction than extrinsic evidence, such as dictionaries). The Court is not persuaded that Ricoh's construction should be adopted over Pitney's construction which is derived from the plain language of the claim. Accordingly, "computer" means "either the external operation panel or the remote diagnostic station."

5. "input/output device"

The next disputed claim term appears in Claim 43 of the '289 Patent. (Chart at 23). Ricoh proposes that the term means "a device that can input commands and display information." (*Id.*). Pitney contends that the proper construction is "[a] device that can input commands and display information that is separate and external from the business office device." (*Id.*). Based on the parties' proposed constructions, the disputed issue with respect to this term again is whether the "input/output device" is physically separate and external to the business office device. Ricoh seeks to exclude the limitation that the input/output device is physically separate from the business office device for substantially the same reasons provided for "office machine system." (Tr. of *Markman* Hr'g at 18:3-20:25, 29:14-30:12).

As the Court discussed in detail above, the Court disagrees with Ricoh. The intrinsic evidence indicates that the "input/output device" corresponds to the "operation panel." For example, the specification provides:

Input Process 203 receives input from a user and sends the data to System Control Process 202, which then echoes back the input through Display Process 204, so that the user can yet (sic) feedback of his/her input. The data from the user is then coded in Communication Process 201. The coded data is then sent to Copier Engine through line 12.

'289 Patent, col. 3, ll. 19-24. Moreover, the patentee clearly stated his intent during the prosecution of the '289 patent. The patentee explained to the PTO:

An input/output device is a device which both inputs commands and displays information of the business

office device.

('289 Patent Prosecution History, Dec. 22, 1995 Amendment at 18). The patentee further explained that "Claim 59 requires an input/output device (*which corresponds to the operation panel in the specification*) connected to a business office device." (*Id.* at 25) (emphasis added).

For the reasons discussed above, the Court already concluded that the operation panel is physically separate and external to the business office device. *See* *infra* II.A.1. Based on the intrinsic evidence, this conclusion clearly applies to the input/output device as well, since the patentee stated that the input/output device corresponds to the operation panel. Ricoh fails to provide an additional basis for concluding otherwise. Thus, the Court adopts Pitney's proposed construction. Accordingly, "input/output device" means "[a] device that can input commands and display information that is separate and external from the business office device."

6. "operation panel"

The next disputed term "operation panel" presents the same issue regarding physical separation. This term appears in Claim 2 of the '618 Patent. Ricoh contends that an "operation panel allows a user to specify a function to and display data from the business device engine." (Chart at 27). Pitney argues that the "operation panel" is "[a]n input/output device that can input commands and display information that is separate and external from the business office device." (*Id.*). The Court notes that the parties agree that the terms "operation panel" and "operation terminal" should be construed in the same way. (Ricoh Br. at App. 4; Pitney Br. at App. 4).

Consistent with this Court's analysis and conclusion concerning "input/output device," the Court adopts Pitney's construction. During prosecution, the patentee stated that the "input/output device" corresponds to the "operation terminal." ('289 Patent Prosecution History, Dec. 22, 1995 Amendment at 25). Ricoh provides no additional support for an alternative construction. Consequently, "operation panel" means "[a]n input/output device that can input commands and display information that is separate and external from the business office device."

B. The Meaning of "Diagnose"- "*diagnose an operation*"/ "*diagnostic operation*"

The second overarching claim construction issue concerns the meaning of the term "diagnose." In particular, the parties dispute the meanings of the claim terms "diagnose an operation" and "diagnostic operation" which appear in claims 57 and 58 of the '554 Patent. Ricoh proposes that the terms mean "to display or process state data received from the office machine system in order to identify or characterize the operational state of the office machine system." (Chart at 7). Pitney asserts that the terms mean "to analyze the cause or nature of errors in software or hardware." (*Id.*). In light of these constructions, the disputed issue is whether diagnosing requires an error.

Ricoh's construction is primarily based on the specification and Figure 5 of the patent. Additionally, Ricoh also relies on statements made by the patentee during prosecution whereby he distinguished his invention from the Patel prior art. The patentee stated that the prior art did "not have reference to a system which controls and diagnoses an office device in the context of not only identifying the device and its mechanical state of operation, but also of providing information with regard to the dynamic state of the device itself." ('779 Patent Prosecution History, Oct. 23, 1992 Amendment at 8).

In response, Pitney argues that Figure 5 of the patent merely shows codes, and does not illustrate the use of an "intelligent diagnostics" as Ricoh claims. Additionally, Pitney asserts that Ricoh's reliance on the patentee's statements during prosecution is misplaced since it does not define the term "diagnose an operation." Rather, Pitney contends that its construction should be adopted based on the plain language of

the claim and the ordinary meaning of the word "diagnose."

Based on a review of the intrinsic evidence, the Court concludes that the construction for these terms do not require the presence of an error in software or hardware. The relevant portion of the claim language reads:

a diagnostic processor, connected to a second end of said communication line, which *processes said state data* received from said office machine system to *diagnose an operation* of the office machine system and to communicate interactively with the office machine system....

'554 Patent, Claim 57 (emphases added). Based on the plain language, it appears that the diagnostic processor processes state data after it receives it from the office machine system. There is no mention in the claim language requiring the presence of an error before a diagnostic operation takes place. Further, as Ricoh correctly notes, state data includes static state data which does not change during the life of the device. Thus, the diagnostic operation proceeds even after processing static state data which need not involve errors in software or hardware. Accordingly, the Court does not find a basis in the claim language for importing the limitation Pitney seeks to adopt, and therefore adopts Ricoh's construction.

Consequently, "diagnose an operation" and "diagnostic operation" mean "to display or process state data received from the office machine system in order to identify or characterize the operational state of the office machine system."

C. Additional Limitations Incorporated in Pitney's Proposed Constructions

With respect to the third category of claim terms, Ricoh argues that Pitney impermissibly attempts to import limitations from the specification into the claim construction. The Court will address these four claim terms in turn. (Tr. of *Markman* Hr'g at 21:9-12).

1. "*communication line*"

The parties dispute the meaning of the claim term "communication line" which appears in Claims 57 and 58 of the '554 Patent. Relying on a technical dictionary definition, Ricoh asserts that the term should be defined as "[a]ny physical medium, such as a wire or microwave beam, that is used to transmit data." (Chart at 10). Pitney proposes that the proper construction is a "telephone line, RS232 line, or any other suitable communication line used to transmit information and having two respective ends." (*Id.*).

In analyzing this claim term, the Court first looks to the claim language. The claim explicitly recites:

an office machine system communicating with *a first end* of a communication line ... and a diagnostic processor, connected to *a second end* of said communication line."

'554 Patent, Claim 57. Thus, the plain language of the claim indicates that the "communication line" has two respective ends. Consequently, the Court adopts this part of Pitney's construction.

The remaining issue for this Court to determine is whether the patentee acted as his own lexicographer by defining "communication line" in the specification. Interestingly, both parties refer to the same portion of the specification in support of their proposed constructions. Specifically, the parties cite column 3 lines 29 to 30 which provides:

Remote Diagnostic Station 30 is connected with Copier Engine 10 through line 13, which can be a telephone line, RS232 line, or any other suitable communication means.

'554 Patent, col. 3, ll. 27-30. Based on this reference to the specification, the Court concludes that the

patentee acted as his own lexicographer in defining "communication line." *Id.* In light of the guidance provided by *Phillips*, the Court finds no basis for choosing Ricoh's technical dictionary definition over the clear definition provided in the patent specification. Thus, the Court adopts Pitney's construction. Accordingly, "communication line" means a "telephone line, RS232 line, or any other suitable communication line used to transmit information and having two respective ends."

2. "communication interface"

The next disputed term "communication interface" appears in Claims 57 and 58 of the '554 Patent. Ricoh asserts that the proper construction for this term includes "any hardware and software that is used to connect two modules of a device or to connect two devices." (Chart at 11). Ricoh's construction is primarily based on the technical definition for the term "communication interface," and the opinion of its expert, James R. Adams, Ph.D. ("Adams"). (Tr. of *Markman* Hr'g at 42:4-10). Ricoh also points to the specification and Figure 1 and 2 of the patent.

In contrast, Pitney contends that the term means "[h]ardware having an output coupled to the first end of a communication line and an input coupled to a processor to transmit state data over the communication line." (Chart at 11). Pitney bases its construction primarily on the claim language. Based on the parties' proposed constructions, the issue before the Court is whether "communication interface" is limited to the hardware or includes a combination of hardware and software.

The Court agrees with Pitney that "communication interface" refers to hardware. In Claims 57 and 58 which are apparatus claims, the communication interface is described as a component of the "office machine system." '554 Patent, Claims 57 & 58. In the specification and Figure 2, the patent describes the "interface" as part of the hardware for the present invention. The specification states:

FIG. 2 illustrates hardware features utilized to implement the present invention. All devices 10, 20, 30 have buses 1001, 2001, and 3001, which connect Interface Units 114, 214, and 314 respectively.

Id., col. 3, ll. 37-40. The Court finds no basis in the intrinsic evidence for including software in the construction. Consistent with *Phillips*, the Court attributes greater weight to the intrinsic evidence, rather than extrinsic, including technical dictionaries and expert testimony, which are the sources upon which Ricoh relies in support of its proposed construction. Thus, the Court adopts Pitney's construction. Accordingly, "communication interface" means "hardware having an output coupled to the first end of a communication line and an input coupled to a processor to transmit state data over the communication line."

3. "state data generator"

At the *Markman* hearing, the parties agreed on the construction of "state data generator." Consequently, "state data generator" means "any device, sensor, or process that generates state data." (Tr. of *Markman* Hr'g at 48:14-49:14).

4. "business office device"

The next disputed term "business office device" appears in various claims of the '289, '120 and '618 Patents.FN6 Ricoh proposes the following construction:

FN6. The parties agree that "business device engine" should be construed in the same way as "business office device." (Chart at 13).

A business office device is an intelligent module of an office machine system that includes a device engine for carrying out the mechanical operations of the office machine system, and its own communication

capability that enables it to communicate intelligently with other modules of the office machine system, or with other devices. The intelligent business office device makes use of an intelligent communication protocol.

(Chart at 13). Pitney asserts that "business office device" is "a copier, printer or facsimile or other business office equipment." (Id.).

The Court finds that the intrinsic evidence, particularly the claims in this instance, provides a straightforward definition for this term which is consistent with Pitney's proposed construction. As the Federal Circuit noted in *Phillips*, the claim in which the term appears and other claims of a patent, including both asserted and unasserted claims, can serve as "valuable sources of enlightenment as to the meaning of the claim term." *Phillips*, 415 F.3d at 1314. Claim 1 of the '289 Patent reads:

A method, comprising the steps of:

storing semi-static state data in a business office device, the semi-static state data including data which may change infrequently over a life of the business office device;

initiating communication between the business office device and a computer, by the business office;

transmitting the semi-static state data from the business office device to the computer; and

receiving the semi-static state data by the computer.

'289 Patent, Claim 1. Notably, dependent claims 4 through 6 further recite:

4. A method according to claim 1, wherein: the business office device is a copier ...

5. A method according to claim 1, wherein: the business office device is a facsimile machine ...

6. A method according to claim 1, wherein: the business office device is a printer....

Id., Claims 4-6. Thus, the plain language of the claims appearing in the '289 Patent clearly defines copiers, facsimiles and printers as examples of a "business office device." This language is consistent with Pitney's construction.

Additionally, Pitney's construction is further supported by the specification. In the Background of the Invention, the patentee states:

The present invention relates to a method and apparatus for communicating and controlling various types of business office equipment or devices transparently and uniformly. The types of business equipment could be *copiers, facsimiles and/or printers*.

The creation of business office devices such as a *copier, facsimile or printer* requires activities assigned to various groups which must be integrated into at a certain time.

Id., col. 1, ll. 15-23 (emphases added). Support for this construction is further found in the Abstract which describes the claimed invention as "[a] method and apparatus for controlling and communicating with business office devices, such as copiers, facsimiles and/or printers." Id., Abstract. In light of the intrinsic evidence, the Court finds that the patentee acted as his own lexicographer with respect to the term "business office device" by setting forth a clear definition in the specification.

Ricoh argues that Pitney's proposition is incorrect because: 1) the prosecution history supports its construction which includes language regarding intelligent modules and communication, (Chart at 13-14);

and 2) by adopting Pitney's construction, the Court would not maintain integrity between the Court's definitions. (Tr. of *Markman* Hr'g at 44-45). With respect to Ricoh's first argument, the Federal Circuit clearly indicated that the specification is usually dispositive and "the single best guide to the meaning of a disputed term." Phillips, 415 F.3d at 1315. The Court remains mindful that "because the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes." Id. at 1317. In this case, the Court relies heavily upon the specification as opposed to the prosecution history in defining this term since it provides a clear definition for "business office device"-one that is consistent with Pitney's construction.

The Court further rejects Ricoh's second argument as a basis for adopting its proposed construction. Ricoh argues that integrity between the Court's constructions is not maintained because the "business office device" must be "just the engine" of a device, rather than the device as a whole. (Tr. of *Markman* Hr'g at 44:14-45:1). Ricoh, however, fails to provide any basis for limiting the construction to "just the engine" when the claims and specification clearly indicates otherwise. Consequently, the Court concludes that a "business office device" means "a copier, printer or facsimile or other business office equipment."

D. The Meaning of "Initiate"

The fourth overarching claim construction issue concerns the meaning of "initiate." The parties identify several disputed claim terms which the Court will address in turn.

1. "*initiating communication between the business office device and a computer, by the business office device*" / "*initiating communication between the printer and the computer by the printer*"

The disputed claim terms appear in the '289 and '678 Patents. With respect to the claim term "initiating communication between the business office device and a computer, by the business office device," Ricoh proposes that this term means "that the business office device (i.e., the device engine module) has the intelligence and capability of establishing communications with another module of the business office device or with another device." (Chart at 18). Pitney contends that this term means "[t]he business office device itself starts or establishes communication with the computer." (Id.). Based on these constructions, and as clarified at the *Markman* hearing, the disputed issue concerns whether the business office device initiates the communication on its own.

Pitney asserts that the claims expressly require the business office device to initiate the communication. For example, Claim 1 provides:

A method, comprising the steps of:

storing semi-static state data in a business office device, the semi-static state data including data which may change infrequently over a life of the business office device;

initiating communication between the business office device and a computer, by the business office [device];

transmitting the semi-static state data from the business office device to the computer; and

receiving the semi-static state data by the computer.

'289 Patent, Claim 1 (emphasis added). Claim 22 also claims a system that has a business office device which includes a "means for initiating communication between the business office device and the computer, before the transmitting device transmits the static state data." Id., Claim 22. Additionally, Claim 68 provides

that the "business office device" includes a "means for initiating communication between the business office device and the operation terminal." *Id.*, Claim 68. The Court agrees with Pitney that the claim language supports the conclusion that, with regard to this term, the communication is being initiated by the business office device.

Pitney further argues that its construction is consistent with the specification. Pitney references the specification which provides:

At power-on time, System Control Process 102 not only brings up the target device 10, but also establishes the communication with attached devices by first checking the physical connection and then establishing the communication by means which will be described below.

Copier engine 10 is idle until a *user* specifies some function through Operation Panel 20. During the idle time, however, System Control Process 102 continuously monitors its state through Monitoring Process 104. If abnormal states are detected, System Control Process 102 sends data to Communication Process 101, which codes data and sends the coded data to the Operation panel 20 through communication media line 12. Communication Process 201 sends acknowledgment....

'289 Patent, col. 2,1.65-col. 3,1.10 (emphasis added). Based on this reference to the specification, Pitney argues that the claim term requires the business office device, rather than a user, to initiate communication with the operation panel. Pitney asserts that the specification distinguishes between a communication initiated by the business office device and a communication initiated by a user. The patent describes the latter as being initiated by a user only when the user specifies the function through the operation panel. According to Pitney, this was a feature that Motoyoma used to distinguish his invention from the prior art. ('289 Patent Prosecution History, Dec. 22, 1995 Amendment at 26-27).

In response, Ricoh argues that a person of ordinary skill in the art reading the patent would understand that a device initiates communication "even if a human has started a function, for example by turning power on, the properly construed claims cover the interactions between the various modules of the device." (Rico's Reply at 16-17). Ricoh relies on the specification and expert opinion of Adams for this proposition.

The Court concludes that Pitney's construction more accurately reflects the meaning of this specific claim term. As aforementioned, the Court agrees with Pitney that the express language of the claim requires the communication to be initiated by the business office device. *See* Phillips, 415 F.3d at 1312 (noting the "bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude") (quotations omitted). The claim here identifies the business office device as what initiates the communication and does not reference a user.

The Court rejects Ricoh's construction because it fails to account for the key term "initiate." For example, the limitation that the business office device has the "intelligence and capability of establishing communications" ignores the plain and ordinary meaning of the term "initiate" which is to start something. Because the claim language itself indicates what performs the "initiation," i.e., the business office device or a means contained in the business office device, this should be incorporated in the term's construction.

The Court will therefore adopt Pitney's construction. Accordingly, "initiating communication between the business office device and a computer, by the business office device" and "initiating communication between the printer and the computer by the printer" mean that "[t]he business office device/printer itself starts or establishes communication with the computer." FN7

FN7. To clarify, the Court concludes that these claim terms require the business office device or printer to initiate the communication with the computer. Based on the claim language, any actions that may occur before the business office device or printer actually initiates communication, e.g. a user pressing a button,

need not be included in the claim construction. As such, an act involving human intervention may read on this limitation so long as the requirement that the business office device or printer initiates the communication with the computer is met.

2. "initiates a diagnostic operation in the office machine system"

The next disputed claim term appears in Claims 57 and 58 of the '554 Patent. Ricoh asserts that "initiates a diagnostic operation in the office machine system" means "a command sent from the diagnostic processor to the office machine system causes the office machine system to begin a diagnostic operation." (Chart at 9). Pitney asserts that the term should be construed as "[t]o start a routine in the office machine system to analyze the cause or nature of errors in software or hardware." (Id.).

The Court notes that the term "initiate" appears in several of the claims of the '554 Patent. '554 Patent, Claims 50-51, 57-58. For example, Claim 57 recites:

A system, comprising:

an office machine system ... and

a diagnostic processor ... wherein:

said diagnostic processor includes *means for sending a command from the diagnostic processor to the office machine system over the communication line which initiates a diagnostic operation in the office machine system;* and

data is transmitted from the office machine system to the diagnostic processor over the communication line after the diagnostic operation is initiated.

'554 Patent, Claim 57 (emphasis added). In these claims, the claim describes a command being sent from the diagnostic processor to the office machine system which causes a diagnostic operation to "initiate." The claims also indicate that processed data is transmitted after the initiation of the diagnostic operation. Id.

Once again, the Court finds itself in a position where minimal guidance is provided in the written description-particularly in light of the fact the term "initiate" does not appear in the written description. As such, the Court must rely on the plain language of the claims which provide some guidance on this issue. Having concluded that "diagnostic operation" does not require the presence of error, the Court concludes that Ricoh's construction more accurately reflects the proper interpretation. Thus, the Court adopts that construction. Accordingly, "initiates a diagnostic operation in the office machine system" means "a command sent from the diagnostic processor to the office machine system causes the office machine system to begin a diagnostic operation."

E. Other Claim Terms

The parties identified four additional terms which do not fall in any of the four previous claim construction categories, but nonetheless require construction. During the *Markman* hearing, the parties stipulated as to the construction of a number of these terms.

1. "dynamic state data"

At the *Markman* hearing, the parties agreed that the proper construction for the term "dynamic state data" is "state data that changes frequently over the life of the machine." (Tr. of *Markman* Hr'g at 57:21-62:11).

2. "*static state data*"/ "*life of the business office device*"

The next two disputed terms appear together in various claims of the '289, '618 and '120 Patents. For example, Claim 22 of the '289 Patent claims a business office device that includes "a memory which stores static state data including data which does not change over a life of the business office device." '289 Patent, Claim 22. The parties primarily dispute the meaning of the "life of the business office device."

Relying on the expert opinion of Adams, Ricoh asserts that the claim term refers to "the period of time the manufacturer intends the device to be deployed." (Chart at 25). Ricoh argues that from the perspective of an engineer, and based on the context of the patent, "the design objective of the static state data is met so long as other modules of a device or other devices can rely on the fact that the data will not change during a particular deployment of the device." (Ricoch Reply at 21). In contrast, Pitney argues that in the context of a consumer product, "life of the device" typically refers to the "time the business office device is created to the time it is scrapped." (Chart at 25; Tr. of *Markman* Hr'g at 57:6-20). Pitney further argues that there is nothing in the intrinsic evidence that would support importing a temporal limitation in the definition.

The Court is again being asked to construe a claim term which the patentee fails to reference in the specification. Thus, the Court is left to make its determination based on the information provided by the parties-namely, a general dictionary definition of "life," i.e. "the period from birth to death," (Pitney Br. at 37) (citing MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY 672), or the expert declaration of Adams. Both sources fall into the less reliable category of claim construction tools-i.e., extrinsic evidence. Mindful that the Court must construe the term in the manner a person of ordinary skill in the art would understand the term after reading the patent, in this case the Court will attribute greater weight to the expert declaration, rather than the general dictionary definition of "life" since the dictionary definition is one that is detached from the context of the specification.

Adams explains that a person of ordinary skill in the art would understand the "life of the device" to mean "the time the manufacturer intends the device to be deployed" since the design objectives are met every time a device is "remanufactured and given a new identification or model number, and [] then redeployed as a new device." (Declaration of Adams para. 54-55). The Court finds nothing in the intrinsic evidence to contradict this proposition. Thus, the Court is persuaded by Adams' opinion and therefore adopts Ricoh's proposed construction. Accordingly, "life of the device" means "the period of time the manufacturer intends the device to be deployed."

3. "*engine for performing mechanical functions*"

At the *Markman* hearing, the parties agreed that the proper construction for the term "engine for performing mechanical functions" is "an engine for performing mechanical function." (Tr. of *Markman* Hr'g at 70:25-71:1).

4. "*serial number*"

At the *Markman* hearing, the parties agreed that the proper construction for the term "serial number" is "any alphanumeric or symbolic string that is a unique identifier." (Tr. of *Markman* Hr'g at 73:2-8).

III. Means-Plus-Function Claim Limitations

Although the parties identified seventeen means-plus-function limitations, the parties clarified at the *Markman* hearing that there are three contested issues before the Court. First, the Court must determine whether a "communication line" is part of the corresponding structure for a number of means-plus-function limitations. Second, the Court must construe the "means for processing" limitation found in claims of the '120 Patent. Third, the Court must construe "input/output means for inputting commands and displaying information" which is also recited in claims of the '120 Patent.

A. Whether "*communication line*" Is Corresponding Structure

The primary disputed issue involves nine of the identified means-plus-function limitations identified in the claim construction chart.FN8 The issue is whether the "communication line" is part of the corresponding structure. The Court will address each of the nine terms individually.

FN8. Ricoh raised an additional issue with respect to the claim limitations numbered 1, 2, 3, 4, 5, 9, 10, 11, 13 and 15 in the claim construction chart concerning whether Figures 4 and 5 and Table 1 should be included as corresponding structure. (Tr. of *Markman* Hr'g at 80:15-81:12). The parties informed the Court at the hearing that this issue was resolved. (*Id.* at 89:10-18). Thus, the Court need not address this issue.

1. "*means for sending a command from the diagnostic processor to the office machine system over the communication line which initiates a diagnostic operation in the office machine system*"

The first disputed claim term appears in Claims 57 and 58 of the '554 Patent. The parties substantially agree that the claimed function is "sending a command from the diagnostic processor to the office machine system over the communication line which initiates a diagnostic operation in the office machine system." The parties also agree that the corresponding structure includes the processor 311 and the interface unit 314 of Figure 2. (Chart at 30). Pitney, however, contends that the diagnostic process 302 and the communication line 13 should also be included as corresponding structures. Pitney argues that the claim language mandates this conclusion because it states that "said diagnostic processor includes means for sending a command from the diagnostic processor to the office machine system over the communication line." '554 Patent, Claim 57. In response, Ricoh argues that the communication line should not be included as corresponding structure because it is not necessary to perform the claimed function. Rather, according to Ricoh, it merely serves as a medium through which commands are sent to the operation panel.

It is well-established that "structure disclosed in the specification is 'corresponding' structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim." *B. Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1424 (Fed.Cir.1997). "Structural features that do not actually perform the recited function do not constitute corresponding structure and thus do not serve as claim limitations." *Asyst Techs., Inc. v. Empak, Inc.*, 268 F.3d 1364, 1370 (Fed.Cir.2001).

The Court agrees with Pitney that the diagnostic processor 302 and communication line 13 should also be included as corresponding structure particularly because the claim language itself includes these structures as part of the claimed function. Without these particular structures, the function could not be performed. *See* '554 Patent, Claims 57, 58 & Figs. 1, 2. FN9 The specification describes the communication line as "a telephone line, RS232 line, or any other suitable communication means." *Id.* col. 3, ll. 29-30. Consequently, the "means for sending a command from the diagnostic processor to the office machine system over the communication line which initiates a diagnostic operation in the office machine system" performs the function of "sending a command from the diagnostic processor to the office machine system over the communication line which initiates a diagnostic operation in the office machine system," and the corresponding structure is processor 311, interface unit 314 of Figure 2, diagnostic process 302 and communication line 13.

FN9. During the *Markman* hearing, Ricoh essentially conceded this point, but argued that this supports excluding the communication line as corresponding structure in the other means-plus-limitations since "communication line" only appears in the claim language surrounding this claim term, but not the others. (*See* Tr. of *Markman* Hr'g at 83:21-84:1) ("I see her point. This claim does say expressly over the communication line. That is one where reasonable people can disagree, and I think the medium could be included, because it's expressly called out, but if you do that, it's got to come out of every other one, because

none of the others calls out a communication line.").

2. "means for initiating communication between the business office device and the computer, before the transmitting device transmits the static state data"

The next disputed term appears in Claim 22 of the '289 Patent. The parties substantially agree that the claimed function is "initiating communication between the business office device and the computer, before the transmitting device transmits the static states data." (Chart at 32). The parties further agree that the processor 111 and interface unit 114 of Figure 2 programmed to perform the communication process 101 are corresponding structure. Pitney contends, however, that additional structure including communication lines 12 and 13 of Figure 1 and Systems Control Process 102 are also corresponding structures. In support of its assertion that the Systems Control Process 102 is part of the corresponding structure, Pitney references the part of the specification which states:

At power-on time, System Control Process 102 not only brings up the target device 10, but also establishes the communication with attached devices by first checking the physical connection and then establishing the communication by means which will be described below.

'289 Patent, col. 2, ll. 63-67. Pitney also references additional portions of the specification to establish that the communication lines and the System Control Process 102 should be construed as corresponding structure.

The Court, however, finds that none of the references to the specification clearly link these additional structures to the "initiating" function. There is no indication that these structures are necessary to initiate the communication. Moreover, unlike the previous means-plus-function limitation, these additional structures are not expressly stated in the claim. As such, the Court finds no basis for including the communication lines 12 and 13 and System Control Process 102 as corresponding structure. Accordingly, "means for initiating communication between the business office device and the computer, before the transmitting device transmits the static state data" performs the function of "initiating communication between the business office device and the computer, before the transmitting device transmits the static states data" and the corresponding structures are the processor 111 and interface unit 114 of Figure 2 programmed to perform the communication process 101.

3. "means for initiating communication between the business office device and the operation terminal"

The next disputed claim term appears in Claims 68 of the '289 Patent. The parties agree that the claimed function is "initiating communication between the business office device and the operation terminal." (Chart at 34). With respect to the rest of the construction, the parties essentially offer the same positions and the same support for these positions as in the previous claim term. For the same reasons described above, the Court concludes that "means for initiating communication between the business office device and the operation terminal" performs the function of "initiating communication between the business office device and the operation terminal" and the corresponding structures are processor 111 and interface unit 114 of Figure 2 programmed to perform the communication process 101.

4. "communication processor means [of the business device engine]" / "communication processor means [of the operation panel] for communicating with said communication processor means of said business device engine"

The next two disputed terms appear in Claims 2 and 3 of the '618 Patent. Claim 2 recites:

An apparatus for controlling and communicating with a business office device such as a facsimile, copier or printer, comprising:

a business device engine such as a facsimile, copier or printer for providing a facsimile document, a photocopy of a document, or a printed document, respectively, said *business device engine including communication processor means*;

an operation panel for controlling operation of said business device engine, said *operation panel including communication processor means for communicating with said communication processor means of said business device engine*

'618 Patent, Claim 2 (emphases added). The first disputed term is "communication processor means [of the business device engine]." The parties substantially agree that the claimed function is "communicating with communications processor means of the operation panel" and that the corresponding structure is the processor 111 and interface unit 114 of Figure 2 programmed to perform communication process 101 of Figure 1. (Chart at 35).

The second disputed term is "communication processor means [of the operation panel] for communicating with said communication processor means of said business device engine." The parties substantially agree that the function is "communicating with the communication processor means of the business device engine" and the corresponding structures are the processor 211 and interface 214 of Figure 2 programmed to perform the communication process 201 of Figure 1. (Chart at 36).

For both of these terms, however, Pitney urges that the communication line 12 must also be included as corresponding structure because it "is the communication media line between the business device engine and the operation panel." (Pitney Br. at App. 9). Ricoh responds by arguing that the communication line is not necessary structure, and that the claim itself does not include the communication line as part of the function as it did with the first means-plus-function limitation. *See infra* at 40 n.9.

Although the claim term may not include the term "communication line" in the claim itself, the Court agrees with Pitney that the specification describes the communication line as necessary structure. Focusing on the claimed function of "communicating with communications processor means of the operation panel," the means must include structure that is necessary for the communication processor of the business device to communicate with the communications processor of the operation panel. Figure 1 and the specification support the conclusion that this includes the communication line 12. In describing the communication process between the business device engine and the operation panel, the specification states that "[i]f abnormal states are detected, System Control Process 102 sends data to Communication Process 101, which codes data and sends the coded data to the Operation panel 20 *through communication media line 12.*" '618 Patent, col. 3, ll. 6-10 (emphasis added). The Court concludes that this represents a sufficient basis for including the communication line as structure that is necessary to perform the "communicating" function between the business office device and the operation panel.

Similarly, with respect to the "communication processor means [of the operation panel] for communicating with said communication processor means of said business device engine," the Court reaches the same conclusion that the communication line must be included as corresponding structure since the function again concerns the operation panel "communicating" with the business office device. The Court rejects Ricoh's argument that the communication line must be excluded because the claim language does not expressly include the "communication line" as part of the function. The Court's analysis does not end with the claim language. It is well-settled that the Court must look to the specification in determining the corresponding structure. *Budde v. Harley Davidson, Inc.*, 250 F.3d 1369, 1377 (Fed.Cir.2001) (noting the patentee must disclose structure in the specification that is clearly linked or associated with the claimed function for a means-plus-function claim). For the reasons discussed above, it is clear that communication line is necessary corresponding structure.

Consequently, the Court concludes that "communication processor means [of the business device engine]" performs the function of "communicating with communications processor means of the operation panel" and the corresponding structures are the processor 111, interface unit 114 of Figure 2 programmed to perform communication process 101 of Figure 1, and communication line 12. Additionally, "communication processor means [of the operation panel] for communicating with said communication processor means of said business device engine" performs the function of "communicating with the communication processor means of the business device engine" and the corresponding structures are the processor 211, interface 214 of Figure 2 programmed to perform the communication process 201 of Figure 1, and communication line 12.

5. "*means for communicating*"

The next disputed term appears in Claim 2 of the '618 Patent. The parties agree that the function is "communicating the state of the business device engine received from the monitoring processor means." (Chart at 42). The parties further agree that the corresponding structures include the processor 111 and interface unit 114 of Figure 2 programmed to perform the communication process 101 of Figure 1. (*Id.*). Based on the cursory arguments set forth in the briefs, it appears that Pitney seeks to include System Control Process 102 and communication lines 12 and 13 as corresponding structures. (*Id.*; Pitney Br. at App. 13-14).

Pitney contends that the System Control Process 102 is integral in communicating the state of the business device engine. (Chart at 42). The Court agrees. The relevant part of the specification provides:

During the idle time, however, System Control Process 102 continuously monitors its state through Monitoring Process 104. If abnormal states are detected, System Control Process 102 sends data to Communication Process 101, which codes data and sends the coded data to the Operation panel 20 through communication media line 12.... If communication line 13 to Remote Diagnostic Station is connected, System Control Process 102 can send a message to get the attention of Remote Diagnostic Station 30 to notify station 30 of an abnormal state.

'618 Patent, col. 3, ll. 4-18. This disclosure indicates that the System Control Process 102 is the structure that receives the state of the device engine from the monitoring processor means. The specification also indicates that data is communicated to the Operation Panel or Remote Diagnostic Station via communication lines 12 and 13. Thus, the Court concludes that these additional structures are necessary to perform the claimed function. Accordingly, "means for communicating" performs the function of "communicating the state of the business device engine received from the monitoring processor means" and the corresponding structures are the processor 111, the interface unit 114 of Figure 2 programmed to perform the communication process 101 of Figure 1, System Control Process 102 and communication lines 12 and 13.

6. "*means for identifying itself*"

The next disputed term appears in Claim 3 of the '618 Patent. The parties agree that the function is "identifying the business device engine to another device through the communication processor means of the business device engine." (Chart at 44). The parties further agree that the processor 111 and interface unit 114 of Figure 2 programmed to perform the communication process 101 of Figure 1 are corresponding structure. (*Id.*). Pitney again seeks to include the communication line as corresponding structure.

This limitation appears in Claim 3, a claim that is dependent on Claim 2, which claims:

The apparatus as in claim 2, wherein said business device engine includes means for identifying itself through said communication processor means of said business device engine.

'618 Patent, Claim 3. Pitney relies on the same aspects of the specification as in the previous means-plus-

function limitations. However, the Court disagrees with Pitney that the specification establishes that the communication line is necessary structure for this particular function. The claimed function involves "identifying the business device engine to another device." Pitney fails to identify references to the specification which describe the business device engine "identifying" itself to another device. As such, it is unclear from the both claim language and the specification whether this function involves the communication of information via a communication line. Rather, the focus of this functional limitation appears to be on the business device engine "identifying" itself, and the Court finds no clear link between the communication line and this particular function.

Finding no clear basis in the specification to conclude that the communication line is necessary structure to perform the claimed function, the Court concludes that the "means for identifying itself" performs the function of "identifying the business device engine to another device through the communication processor means of the business device engine" and the corresponding structures are the processor 111 and interface unit 114 of Figure 2 programmed to perform the communication process 101 of Figure 1.

7. "*means for transmitting*" / "*means for receiving*"

The next disputed claim terms appear in asserted Claims 4, 77 and 94 of the '120 Patent. Claim 1 is a representative claim which generally claims a business office device. Claim 1 recites:

A business office device, comprising:

an engine for performing mechanical functions in response to a command from a separate device;

a memory for storing static state data of the engine;

means for transmitting the static state data to the separate device;

means for receiving data from the separate device which has been transmitted from the separate device after the means for transmitting transmits the static state data; and

means for processing the data received by the means for receiving and for controlling the business office device in response to the processing.

'120 Patent, Claim 1. The parties dispute the construction of "means for transmitting" and "means for receiving."

Based on the claim language, the claimed function of "means for transmitting" is "transmitting the static state data to the separate device." *Id.*, Claims 1 & 74. The claimed function for "means for receiving" is "receiving data from the separate device which has been transmitted from the separate device after the means for transmitting transmits the static state data." *Id.* For both limitations, the parties agree that the corresponding structures are the processor 111 and the interface unit 114 of Figure 2 programmed to perform the receiving functions included in the communication process 101 of Figure 1. Pitney urges the Court to include the communication lines 12 or 13 as additional corresponding structure relying primarily on the same references to the specification as in previous claim terms.

The Court concludes that the communication lines are not structures that correspond to the recited functions of "transmitting" and "receiving." Similar to the communication line at issue in *Asyst Technologies*, the specification describes the communication lines as structures that enable other means to perform the functional limitations, but do not perform the functions themselves. 268 F.3d at 1370-71. Unlike the earlier claim limitations wherein this Court concluded that the communication line should be included as corresponding structure, these limitations do not involve any "communicating" function and do not expressly

include the communication line in the claim language itself. Accordingly, the Court finds that the specification does not clearly link the communication lines 12 and 13 for these particular functional limitations, and therefore will not be included in the construction.

Consequently, the Court concludes that "means for transmitting" performs the function of "transmitting the static state data to the separate device" and "means for receiving" performs the function of "receiving data from the separate device which has been transmitted from the separate device after the means for transmitting transmits the static state data." The corresponding structures for both limitations are the processor 111 and the interface unit 114 of Figure 2 programmed to perform the receiving functions included in the communication process 101 of Figure 1.

B. Other Disputed Means-Plus-Function Limitations

1. "*means for processing*"

The parties agree that the claimed function for "means for processing" is "processing the data received from the separate device and controlling the business office device in response to that processing." (Chart at 48; Tr. of *Markman* Hr'g at 86:22-87:6). The parties further agree that the corresponding structures are the processor 111 of Figure 1 and the System Control Processor 102, but disagree, however, as to whether the sequencing process 103 of Figure 1 is included as corresponding structure. (Chart at 48).

Pitney argues that the sequencing process 103 is not corresponding structure because the specification provides that its function is sequencing "events according to timing requirements," rather than "processing data and controlling the business office device." (Chart at 48). Ricoh counters by asserting that a person of ordinary skill in the art "would understand that the sequencing process is used in controlling the business office device," citing the declaration of its expert. Adams, however, fails to provide an adequate explanation for this proposition. Moreover, the Court agrees with Pitney that the specification does not link the sequencing processor to the claimed function. Consequently, the Court concludes that the "means for processing" performs the function of "processing the data received from the separate device and controlling the business office device in response to that processing" and the corresponding structures are the processor 111 of Figure 1 and the System Control Processor 102.

2. "*input/output means for inputting commands and displaying information*"

The next disputed claim term appears in the '120 Patent. The parties agree that the claimed function is "inputting commands and displaying information." The parties further agree that the display and input unit 213 of Figure 2 is corresponding structure. (Chart at 49). Ricoh asserts that the processor 211 should also be included as structure, but fails to explain the basis for its position. Ricoh does not identify, nor does this Court find, any clear indication in the specification linking the processor 211 to the claimed function. Consequently, the Court will not include it as corresponding structure.

This means-plus-function limitation presents a second issue-namely, whether the display and input unit 213 must be physically separate and external to the copier engine. Pitney asserts that it does. Because the specification and Figure 2 of the patent indicate that this structure is part of the Operation Panel 20, the Court concludes that this structure is physically separate from the copier engine for the same reasons discussed above in Section II.A.1. Accordingly, "input/output means for inputting commands and displaying information" performs the function of "inputting commands and displaying information," and the corresponding structure is the display and input unit 213 which is physically separate from the copier engine.

C. Stipulated Claim Constructions

At the *Markman* hearing, the parties agreed to the construction of additional means-plus-function terms

appearing in Claim 2 of the '618 Patent. (Tr. of *Markman* Hr'g at 85:11-87:7; Chart at 37-39, 43). Consequently, these terms have the following meanings: 1) "means for storing static state data" performs the function of "storing static state data" and the corresponding structures are 107 of Figure 1 and permanent memory 112 of Figure 2; FN10 2) "means for storing semi-static state data" performs the function of "storing semi-static state data" and the corresponding structures are 106 of Figure 1 and semi-permanent memory 115 of Figure 2; 3) "means for storing dynamic state data" performs the function of "storing dynamic state data" and the corresponding structures are 105 of Figure 1 and dynamic memory 116 of Figure 2; 4) "means for storing" performs the function of "storing the state of the business device engine in the means for storing dynamic state data" and the corresponding structures are the processor 111 of Figure 2 programmed to store 105 of Figure 1 into the dynamic memory 116 of Figure 2.

FN10. The parties agreed that 105, 106 and 107 in Figure 1 of the '618 Patent are included as corresponding structure for the aforementioned means-plus-function limitations. (Tr. of *Markman* Hr'g at 85:19-86:1). The parties further agree that these structures need not be characterized as state data or memory, but simply as structures identified as 105, 106, and 107 and as defined by the patent. (*Id.* at 85:23-86:1).

CONCLUSION

For the reasons set forth above, the disputed claim terms have the following meanings:

1. "office machine system" required by Claims 57 to 60 of the '554 Patent means "[a] business office device, such as a copier, printer or facsimile, connected to but separate from an external operation panel";
2. "diagnostic processor" required by Claims 57 and 58 of the '554 Patent is part of the Remote Diagnostic Station, which is remotely located from the office machine system and communicates interactively with the office machine system, via a communication line, to process data and then diagnose the office machine system;
3. "separate" required by Claims 62, 68, 69 and 72 of the '289 Patent and Claims 4, 19, 77, 94 and 141 of the '120 Patent requires "physical separation";
4. "computer" required by Claims 2 and 22 of the '289 Patent, Claim 141 of the '120 Patent, and Claim 31 of the '678 Patent means "either the external operation panel or the remote diagnostic station";
5. "input/output device" required by Claim 43 of the '289 Patent means "[a] device that can input commands and display information that is separate and external from the business office device";
6. "operation panel" required by Claim 2 of the '618 Patent means "[a]n input/output device that can input commands and display information that is separate and external from the business office device";
7. "diagnose an operation" and "diagnostic operation," both required by Claims 57 and 58 of the '554 Patent, mean "to display or process state data received from the office machine system in order to identify or characterize the operational state of the office machine system";
8. "communication line" required by Claims 57 and 58 of the '554 Patent means a "telephone line, RS232 line, or any other suitable communication line used to transmit information and having two respective ends";
9. "communication interface" required by Claims 57 and 58 of the '554 Patent means "hardware having an output coupled to the first end of a communication line and an input coupled to a processor to transmit state data over the communication line";

10. "state data generator" required by Claims 57 and 58 of the '554 Patent means "any device, sensor, or process that generates state data";

11. "business office device" required by Claims 2, 22, 43, 62, 64, 68, 69, 72 and 75 of the '289 Patent, Claims 4, 19, and 141 of the '120 Patent, and Claim 2 of the '618 Patent means "a copier, printer or facsimile or other business office equipment";

12. "initiating communication between the business office device and a computer, by the business office device" required by Claims 2, 22, and 68 of the '289 Patent and "initiating communication between the printer and the computer by the printer" required by Claim 31 of the '678 Patent mean that "[t]he business office device or printer itself starts or establishes communication with the computer";

13. "initiates a diagnostic operation in the office machine system" required by Claims 57 and 58 of the '554 Patent means "a command sent from the diagnostic processor to the office machine system causes the office machine system to begin a diagnostic operation";

14. "dynamic state data" required by Claim 2 of the '618 Patent is "state data that changes frequently over the life of the machine";

15. "life of the device" required by Claims 22, 62, 64, 72 and 75 of the '289 Patent, Claim 2 of the '618 Patent, and Claims 4, 19, 77, 94 and 141 of the '120 Patent means "the period of time the manufacturer intends the device to be deployed";

16. "engine for performing mechanical functions" required by Claim 62 of the '289 Patent, and Claims 4 and 77 of the '120 Patent is "an engine for performing mechanical function";

17. "serial number" required by Claims 64 and 75 of the '289 Patent, Claim 2 of the '618 Patent, and Claims 4, 19, 77 and 94 of the '120 Patent is "any alphanumeric or symbolic string that is a unique identifier."

Means-plus-function Limitations:

1. "means for sending a command from the diagnostic processor to the office machine system over the communication line which initiates a diagnostic operation in the office machine system" required by Claims 57 and 58 of the '554 Patent performs the function of "sending a command from the diagnostic processor to the office machine system over the communication line which initiates a diagnostic operation in the office machine system," and the corresponding structure is processor 311, interface unit 314 of Figure 2, diagnostic process 302 and the communication line 13;

2. "means for initiating communication between the business office device and the computer, before the transmitting device transmits the static state data" required by Claim 22 of the '289 Patent performs the function of "initiating communication between the business office device and the computer, before the transmitting device transmits the static states data" and the corresponding structures are the processor 111 and interface unit 114 of Figure 2 programmed to perform the communication process 101;

3. "means for initiating communication between the business office device and the operation terminal" required by Claim 68 of the '289 Patent performs the function of "initiating communication between the business office device and the operation terminal" and the corresponding structures are processor 111 and interface unit 114 of Figure 2 programmed to perform the communication process 101;

4. "communication processor means [of the business device engine]" required by Claims 2 and 3 of the '618 Patent performs the function of "communicating with communications processor means of the operation panel" and the corresponding structures are the processor 111, interface unit 114 of Figure 2 programmed to perform communication process 101 of Figure 1, and communication line 12;

5. "communication processor means [of the operation panel] for communicating with said communication processor means of said business device engine" required by Claims 2 and 3 of the '618 Patent performs the function of "communicating with the communication processor means of the business device engine" and the corresponding structures are the processor 211, interface 214 of Figure 2 programmed to perform the communication process 201 of Figure 1, and communication line 12;

6. "means for communicating" required by Claim 2 of the '618 Patent performs the function of "communicating the state of the business device engine received from the monitoring processor means" and the corresponding structures are the processor 111, the interface unit 114 of Figure 2 programmed to perform the communication process 101 of Figure 1, System Control Process 102 and communication lines 12 and 13;

7. "means for identifying itself" required by Claim 3 of the '618 Patent performs the function of "identifying the business device engine to another device through the communication processor means of the business device engine" and the corresponding structures are the processor 111 and interface unit 114 of Figure 2 programmed to perform the communication process 101 of Figure 1;

8. "means for transmitting" required by Claims 4 and 77 of the '120 Patent performs the function of "transmitting the static state data to the separate device" and "means for receiving" required by Claims 4, 77 and 94 of the '120 Patent performs the function of "receiving data from the separate device which has been transmitted from the separate device after the means for transmitting transmits the static state data." The corresponding structures for both limitations are the processor 111 and the interface unit 114 of Figure 2 programmed to perform the receiving functions included in the communication process 101 of Figure 1;

9. "means for processing" required by Claims 4 and 77 of the '120 Patent performs the function of "processing the data received from the separate device and controlling the business office device in response to that processing" and the corresponding structures are the processor 111 of Figure 1 and the System Control Processor 102;

10. "input/output means for inputting commands and displaying information" required by Claims 147 and 150 of the '120 Patent performs the function of "inputting commands and displaying information" and the corresponding structure is the display and input unit 213 which is physically separate from the copier engine;

11. "means for storing static state data" required by Claim 2 of the '618 Patent performs the function of "storing static state data" and the corresponding structures are 107 of Figure 1 and permanent memory 112 of Figure 2;

12. "means for storing semi-static state data" required by Claim 2 of the '618 Patent performs the function of "storing semi-static state data" and the corresponding structures are 106 of Figure 1 and semi-permanent memory 115 of Figure 2;

13. "means for storing dynamic state data" required by Claim 2 of the '618 Patent performs the function of "storing dynamic state data" and the corresponding structures are 105 of Figure 1 and dynamic memory 116 of Figure 2;

14. "means for storing" required by Claim 2 of the '618 Patent performs the function of "storing the state of the business device engine in the means for storing dynamic state data" and the corresponding structures are the processor 111 of Figure 2 programmed to store 105 of Figure 1 into the dynamic memory 116 of Figure 2.

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