

UNITED STATES INTERNATIONAL TRADE COMMISSION

Washington, D.C.

In the Matter of

**CERTAIN CAPACITIVE DISCHARGE
IGNITION SYSTEMS, COMPONENTS
THEREOF, AND PRODUCTS
CONTAINING THE SAME**

INV. NO. 337-TA-1390

ORDER NO. 11: CLAIM CONSTRUCTION ORDER

(July 15, 2024)

On April 23, 2024, the parties to this investigation¹ proposed competing constructions for several terms recited in the asserted claims of U.S. Patent No. 7,401,603 (“the ’603 patent”). *See* EDIS Doc. ID 819268. The parties subsequently briefed their positions regarding the terms in accordance with the procedural schedule.²

On May 23, 2024, I conducted a hearing regarding the claim construction disputes.³ After the hearing, I requested supplemental briefing regarding certain proposed constructions. *See* Order

¹ The complainant in this investigation is Altronic, LLC (“Altronic”). The respondents are MOTORTECH GmbH and MOTORTECH Americas, LLC (collectively, “MOTORTECH”).

² *See* Order No. 6 at 2; EDIS Doc. ID 819971 (Complainant’s Opening Claim Construction Brief, or “COCCB”); EDIS Doc. ID 819970 (Respondents’ Opening Claim Construction Brief, or “ROCCB”); EDIS Doc. ID 821130 (Complainant’s Responsive Claim Construction Brief, or “CRCCB”); EDIS Doc. ID 821129 (Respondents’ Responsive Claim Construction Brief, or “RRCCB”).

³ The transcript of the hearing is available at EDIS Doc. ID 822238 (hereinafter “*Markman* Tr.”).

No. 9. The parties provided the requested supplemental briefing.⁴ This order resolves the remaining claim construction disputes raised by the parties.

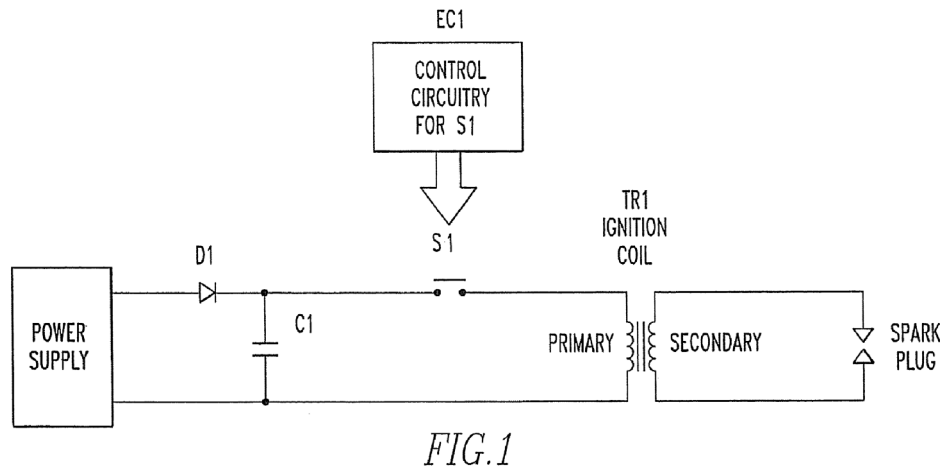
I. BACKGROUND

The application leading to the '603 patent was filed on February 2, 2007. '603 patent at cover. The '603 patent relates to a capacitive discharge ignition system for an internal combustion engine. *Id.* at 1:48–50. Capacitive discharge ignition systems are used to create and maintain a spark across a spark plug within an engine to facilitate the combustion of fuel in the engine. *Id.* at 1:7–11, 1:31–47.

A capacitive discharge ignition system stores energy in a capacitor and then discharges that energy into an ignition transformer (also known as an ignition coil) that is part of the engine. *Id.* at 1:48–2:15. The ignition transformer in turn creates a voltage and current that are applied to a spark plug. *Id.* The voltage applied to the spark plug must be large enough to overcome a resistance caused by an air gap between the electrodes of the spark plug. *Id.* Once the voltage applied to the spark plug exceeds this “breakdown voltage” threshold of the air gap, a spark is generated between the electrodes of the spark plug. *Id.* After the spark is generated, the current sent from the ignition transformer to the spark plug operates to maintain the spark for a particular duration of time. *Id.*

⁴ EDIS Doc. ID 823332 (Complainant’s Supplemental Claim Construction Brief, or “CSCCB”); EDIS Doc. ID 823321 (Respondents’ Supplemental Claim Construction Brief, or “RSCCB”).

Figure 1 of the '603 patent shows a basic capacitive discharge circuit:



'603 patent at Fig. 1. As shown in Figure 1, a capacitive discharge circuit includes a storage capacitor (C1), a diode (D1), and a power supply connected in series. *Id.* at 3:32–35. The ignition transformer (TR1) includes primary and secondary windings. *Id.* at 3:35–36. The primary winding is in series with the storage capacitor and a controllable switch (S1), while a spark plug is connected in series with the secondary winding of the ignition transformer. *Id.* at 3:36–39. An electronic control circuit (EC1) drives the controllable switch. *Id.* at 3:39–40.

The '603 patent discloses an invention which closes and opens switch S1 repeatedly over a certain period to increase the output voltage on the secondary winding of the ignition transformer. *See id.* at 5:1–12. In particular, “additional energy added to the coil primary at a certain time or phase of the secondary waveform increases the output voltage of the coil.” *Id.* at 5:1–3.

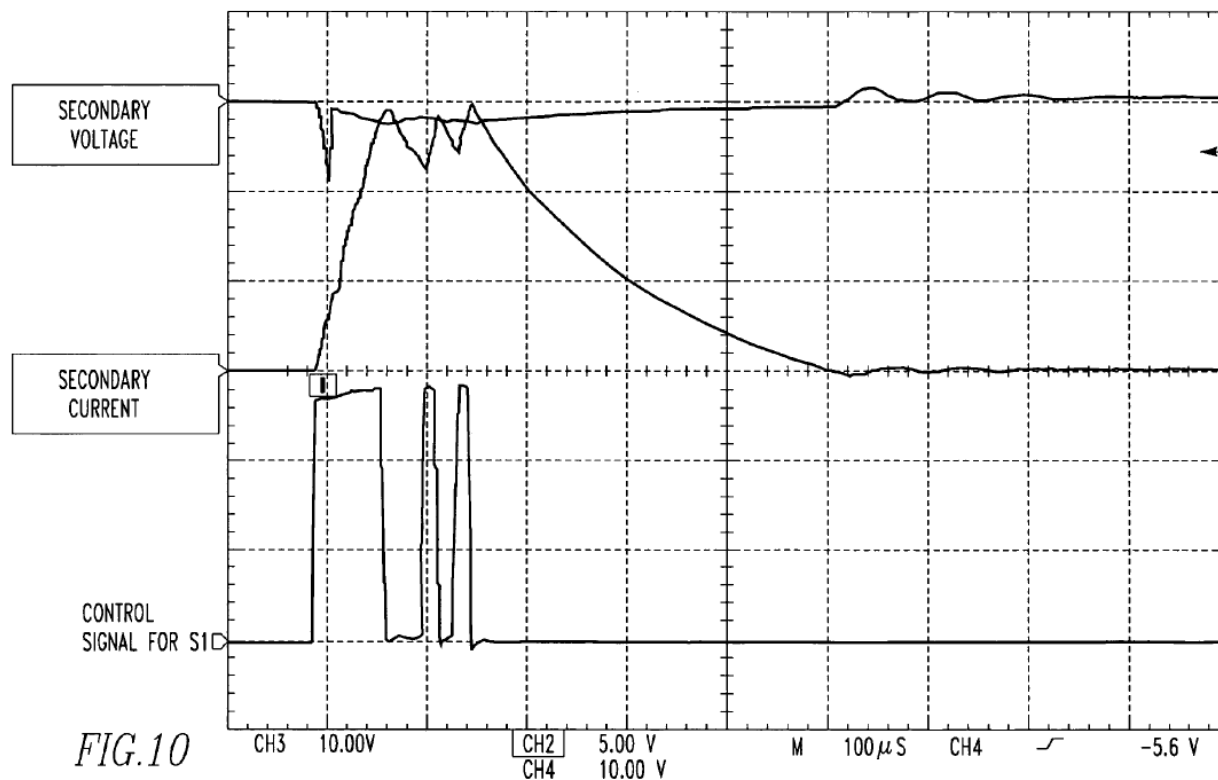


FIG.10

Id. at FIG. 10.

II. PERSON OF ORDINARY SKILL IN THE ART

A person of ordinary skill in the art is a hypothetical person who is presumed to be aware of all pertinent prior art. *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986). Determining the appropriate level of skill for this hypothetical person can involve consideration of the types of problems encountered in the art, prior art solutions to those problems, rapidity with which innovations are made, sophistication of the technology at issue, the educational level of active workers in the field, and the level of education of the inventors themselves. *Daiichi Sankyo Co. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007).

Altronic contends that a person of ordinary skill in the art would have the following qualifications:

[A] bachelor's degree in electrical engineering, or an equivalent degree, and at least 4 years of demonstrated real-world experience in the field of designing and/or testing circuits for ignition systems and/or power electronic systems.

COCCB at 13.

MOTORTECH contends that a person of ordinary skill in the art would have the following qualifications:

[A] bachelor's degree in electrical engineering or its equivalent, as well as two years of professional experience in the design or operation of internal combustion engines. The POSA's lack of work experience can be offset by additional education, and vice versa.

ROCCB at 14.

For purposes of claim construction, MOTORTECH agreed to stipulate to Altronic's proposal for the hypothetical artisan. *Markman* Tr. at 78:17–19.

I find that a person of ordinary skill in the art would have the experience and credentials advanced by Altronic, namely a bachelor's degree in electrical engineering, or an equivalent degree, and at least four years of demonstrated real-world experience in the field of designing and/or testing circuits for ignition systems and/or power electronic systems. *See* COCCB, Ex. A (Eisenstadt Decl.) at ¶ 23.

III. LEGAL PRINCIPLES

“An infringement analysis entails two steps. The first step is determining the meaning and scope of the patent claims asserted to be infringed. The second step is comparing the properly construed claims to the device accused of infringing.” *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995) (*en banc*) (cleaned up), *aff'd*, 517 U.S. 370 (1996). Claim construction resolves legal disputes between the parties regarding claim scope. *See Eon Corp. IP Holdings v. Silver Spring Networks*, 815 F.3d 1314, 1319 (Fed. Cir. 2016).

Evidence intrinsic to the application, prosecution, and issuance of a patent is the most significant source of the legally operative meaning of disputed claim language. *See Bell Atl. Network Servs., Inc. v. Covad Commc'ns Grp., Inc.*, 262 F.3d 1258, 1267 (Fed. Cir. 2001). The intrinsic evidence includes the claims themselves, the specification, and the prosecution history. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005) (*en banc*); *see also Markman*, 52 F.3d at 979. As the Federal Circuit explained in *Phillips*, courts analyze each of these components to determine the “ordinary and customary meaning of a claim term” as understood by a person of ordinary skill in the art at the time of the invention. 415 F.3d at 1313.

“It is a ‘bedrock principle’ of patent law that ‘the claims of a patent define the invention to which the patentee is entitled the right to exclude.’” *Id.* at 415 F.3d at 1312 (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). “[T]he claims themselves provide substantial guidance as to the meaning of particular claim terms.” *Id.* at 1314; *see also Interactive Gift Express, Inc. v. CompuServe Inc.*, 256 F.3d 1323, 1331 (Fed. Cir. 2001) (“In construing claims, the analytical focus must begin and remain centered on the language of the claims themselves, for it is that language that the patentee chose to use to particularly point out and distinctly claim the subject matter which the patentee regards as his invention.” (cleaned up)). The context in which a term is used in an asserted claim can be “highly instructive.” *Phillips*, 415 F.3d at 1314. Additionally, other claims in the same patent, asserted or unasserted, may also provide guidance as to the meaning of a claim term. *Id.*

The specification “is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.” *Id.* at 1315 (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). “[T]he specification may reveal a special definition given to a claim term by the patentee that differs from the meaning

it would otherwise possess. In such cases, the inventor’s lexicography governs.” *Id.* at 1316. “In other cases, the specification may reveal an intentional disclaimer, or disavowal, of claim scope by the inventor.” *Id.* As a general rule, however, the particular examples or embodiments discussed in the specification are not to be read into the claims as limitations. *Id.* at 1323. In the end, “[t]he construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be . . . the correct construction.” *Id.* at 1316 (quoting *Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998)).

IV. CLAIM CONSTRUCTION

A. Agreed Constructions

During the claim construction proceedings, the parties agreed to the meaning of the following two claim terms:

Term	Agreed Construction
<p>“these pulses being arranged in time to occur when it is possible to reinforce the ringing action of the ignition transformer secondary voltage resulting from the previous primary pulses, such that the open circuit breakdown voltage capability of the ignition transformer is increased” (claim 1)</p>	<p>“these pulses being arranged in time to occur when it is possible to reinforce the ringing action of the ignition transformer secondary voltage resulting from the previous primary pulses by adding energy during the ignition transformer secondary voltage ringing down cycle, such that the open circuit breakdown voltage capability of the ignition transformer is increased as compared to the open circuit breakdown voltage capability of the ignition transformer at the time of the first closing of the switch after the second period of time.”</p>

Term	Agreed Construction
<p>“these pulses being arranged in time to occur when it is possible to reinforce the ringing action of the ignition transformer secondary voltage resulting from the previous primary pulses, such that the secondary circuit current capability of the ignition transformer is increased”</p> <p>(claim 8)</p>	<p>“these pulses being arranged in time to occur when it is possible to reinforce the ringing action of the ignition transformer secondary voltage resulting from the previous primary pulses by adding energy during the ignition transformer secondary voltage ringing down cycle, such that the secondary circuit current capability of the ignition transformer is increased as compared to the secondary circuit current capability of the ignition transformer at the time of the first closing of the switch after the second period of time.”</p>

See Order No. 9; CSCCB at 2; RSCCB at 1.

The parties also agreed that the preamble of independent claims 1 and 8 is limiting. See EDIS Doc. ID 819268 at 3. The preamble of both claims is the same and recites “a capacitive discharge ignition system for an internal combustion engine.” I therefore find independent claims 1 and 8 require this element, as do asserted claims 6, 13, 15, and 16, which depend from those independent claims.

B. Disputed Constructions

Two claim construction disputes remain, as discussed below.

i. “pulses being arranged . . . such that the secondary circuit current capability of the ignition transformer is increased” (claim 8)

Claim 8 requires control “pulses being arranged . . . such that the secondary circuit current capability of the ignition transformer is increased.” For reference, claim 8 is reproduced below, with relevant language emphasized:

8. In a capacitive discharge ignition system for an internal combustion engine comprising: a storage capacitor, a power supply connected in series with the storage capacitor, an ignition transformer having primary and secondary windings; and a controllable switch; the primary winding of the ignition transformer and the storage capacitor being connected in series through the controllable switch; a spark plug connected in series with the secondary winding of the ignition transformer; the improvement

comprising an electronic control circuit for driving the controllable switch which is operating in synchronism with the engine such that the switch is initially closed for a period of time to transfer energy to the ignition coil primary, that after this time, the switch is then opened for a second period of time and then the switch is again closed creating a pulse train, such that the switch is controlled by a successive string of control pulses to the switch, each of the individual pulse times having a duration and spacing as determined by the control circuit, these **pulses being arranged** in time to occur when it is possible to reinforce the ringing action of the ignition transformer secondary voltage resulting from the previous primary pulses, **such that the secondary circuit current capability of the ignition transformer is increased.**

'603 patent, claim 8.

The parties' positions on the dispute are summarized as follows:

Term	Altronic's Proposed Construction	MOTORTECH's Proposed Construction
"secondary circuit current capability of the ignition transformer" ⁵ (claim 8)	"The secondary circuit current capability of the ignition transformer includes the magnitude of the secondary current in the ignition transformer, the duration of the secondary current in the ignition transformer, the spark duration created from the secondary current of the ignition transformer, or any combination thereof." ⁶	The amplitude and duration of the secondary circuit current of the ignition transformer are increased above what was generated by the previous control pulse.

See Order No. 9; CSCCB at 2; RSCCB at 1; EDIS Doc. ID 819268 at 1.

The parties dispute whether the increase in the "secondary circuit current capability" requires an increase both in the duration and in the amplitude of the secondary circuit current or whether an increase in only one aspect of current capability will suffice. See, e.g., CSCCB at 2;

⁵ After the claim construction hearing, I proposed a construction for a larger passage that includes this term. See Order No. 9 at 3. MOTORTECH agreed to a portion of the proposed construction, but not to the construction of this phrase. See RSCCB at 1. This order therefore focuses on the phrase still in dispute.

⁶ Altronic agreed to both portions of my proposed construction. See CSCCB at 2.

RSCCB at 8. For the reasons set forth below, I have determined that an increase in the “secondary circuit current capability” does not require an increase both in the duration and in the amplitude of the secondary circuit current, as MOTORTECH contends. Neither does it require that the amplitude of the current representing the increased capability be “above what was generated by the previous control pulse,” as MOTORECH asserts.

The premise of MOTORTECH’s argument is that “[t]here are no embodiments in the specification that include increasing the secondary circuit current capability of the ignition transformer by increasing only the duration of the secondary current or only the spark duration created from the secondary current.” RSCCB at 4–5. In support of its argument, MOTORTECH points to passages in the specification that describe “the present invention” by reference to control of “the duration and amplitude of the extended spark current.” *Id.* (quoting, *e.g.*, ’603 patent at 1:48–2:7). MOTORTECH equates “the duration and amplitude of the extended spark current” with the secondary circuit current. *See* ROCCB at 33 (“the *duration and amplitude* of the extended arc current of the spark [i.e., the secondary circuit current]” (emphasis and insertion in original)). Putting these teachings together, MOTORTECH interprets the specification “as requiring” the invention of claim 8 to achieve an increase both in secondary circuit current duration and in secondary circuit current amplitude. RSCCB at 3.

MOTORTECH’s argument is not consistent with the intrinsic evidence. Comparing claim 8 to other claims of the ’603 patent shows that an increase in the “secondary circuit current capability” can be manifest in a variety of ways. *See Phillips*, 415 F.3d at 1314 (“Differences among claims can also be a useful guide in understanding the meaning of particular claim terms.”). For example, claims 10 and 12 both depend from claim 8, and each describes a different effect on the secondary circuit current that may be achieved from the arrangement of the control pulses. In

claim 10, pulses are arranged “to drive the secondary current higher until a desired secondary current level is reached”:

10. A device according to claim 8, wherein the control circuit for the controllable switch causes the pulse train to continue to send additional **pulses to drive the secondary current higher** until a desired secondary current level is reached.

’603 patent, claim 10 (emphasis added). Claim 10 makes no mention of the duration of the secondary current or the duration of the spark.

In contrast, claim 12, which also depends from claim 8, describes an invention that uses pulses to manipulate the secondary current to set “the spark duration”:

12. A device according to claim 8, wherein the control circuit for the controllable switch causes the pulse train for the control of the switch to continue to send additional pulses to drive the secondary current higher until a desired maximum secondary current level is reached and then suspend sending pulses until the current falls to a value below a desired minimum secondary current level when pulses are then sent again, **for a desired total time of the spark duration**.

’603 patent, claim 12 (emphasis added). If the increase in “secondary circuit current capability” recited in independent claim 8 always required an increase both in amplitude and in duration, as MOTORTECH contends, there would be no need for claim 10 to state that pulses “drive the secondary current higher” and no need for claim 12 to state that the pulses set “the spark duration.” MOTORTECH’s construction does not account for these differences. *See Tandon Corp. v. U.S. Int’l Trade Comm’n*, 831 F.2d 1017, 1023 (Fed. Cir. 1987) (“There is presumed to be a difference in meaning and scope when different words or phrases are used in separate claims.”).

I also find that the specification does not describe the invention to be as limited as MOTORTECH contends. For example, the specification describes several different embodiments of the invention that use pulse control to achieve varying effects on the secondary circuit current and on the spark. Two of those embodiments correspond to claims 10 and 12 described above. The specification distinguishes “one embodiment” that uses pulses to drive the secondary current

higher, as in claim 10, from “another embodiment” that arranges pulses to establish a desired total time of the spark duration, as in claim 12. *Compare* ’603 patent at 2:26–33 *with id.* at 2:41–48. Neither embodiment expressly includes all of the features of the other. Thus, these two different embodiments cut against MOTORTECH’s conclusion that “[t]here are no embodiments in the specification that include increasing the secondary circuit current capability of the ignition transformer by increasing only the duration of the secondary current.” *Cf.* RSCCB at 4–5.

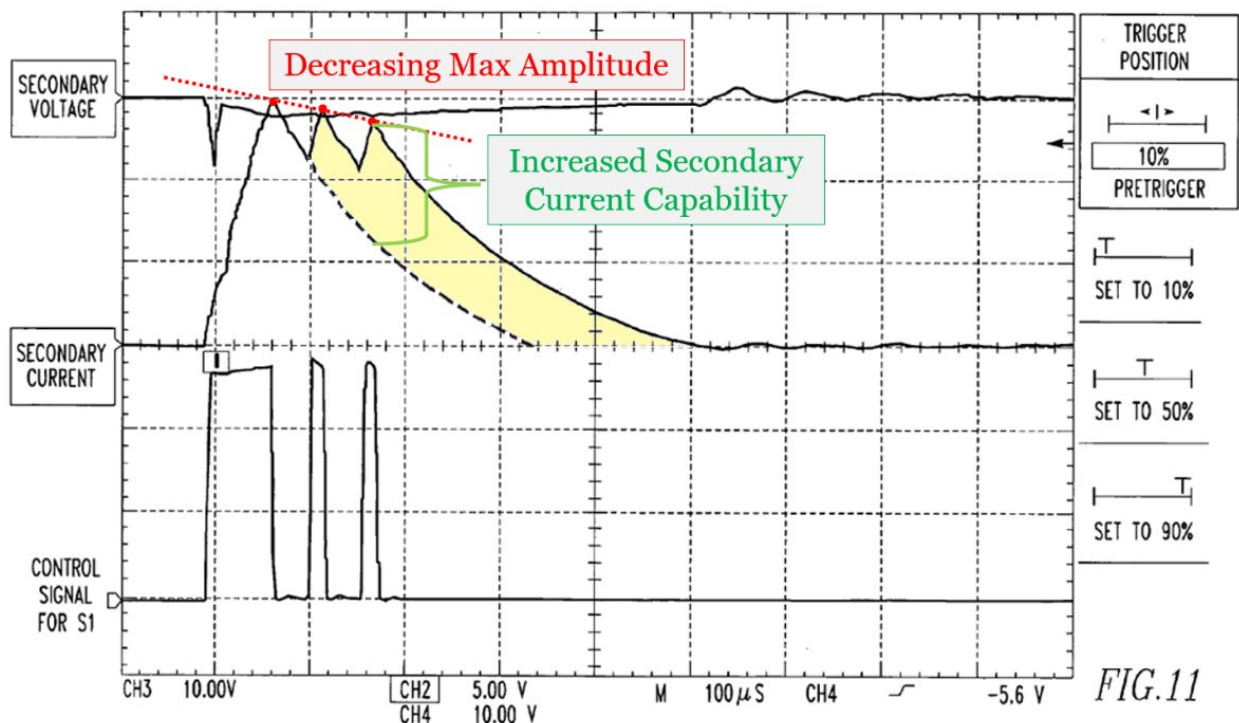
Other embodiments more specifically illustrate the broad nature of the “secondary circuit current capability” in the invention. For example, one embodiment uses “multiple control pulses . . . to increase energy” in the secondary circuit. ’603 patent at 6:19–23. In that embodiment, pulses “control the shape of the secondary current waveform versus time.” *Id.* The specification teaches the mathematical relationship between the secondary current and what the patent calls the “energy envelope”:

Since the actual energy envelope is the integral of the power (the product of the secondary voltage and current waveforms) and since the secondary voltage waveform remains fairly constant over the time period of interest, it is possible to say that **the shape of the energy envelope is directly related to the shape of the secondary current wave form** with respect to time.

Id. at 6:37–43 (emphasis added). In addition to teaching that the secondary current is “directly related” to the energy envelope, the specification explains that through “control of the secondary current waveform by the pulsing of switch S1 . . . very small changes in the shape of the ‘energy envelope’ delivered to the spark gap can be easily made.” *Id.* at 6:32–35. The patent states that the invention thus “allows for the measurement and *control of both the magnitude and timing* of the energy transfer to the mixture.” *Id.* at 6:28–31 (emphasis added). Because the patent specification teaches “both” control of magnitude and control of timing in shaping the waveform of the secondary circuit current, it contradicts MOTORTECH’s conclusion that “[t]here are no embodiments in the specification that include increasing the secondary circuit current capability

of the ignition transformer by increasing only the duration of the secondary current.” *Cf.* RSCCB at 4–5.

Figure 11 of the '603 patent confirms that the secondary circuit current capability of the invention includes independent aspects of magnitude and duration. That figure illustrates the operation of one embodiment of the invention that controls the secondary current waveform. '603 patent at 6:32–35. Altronic annotated Figure 11 to show how that embodiment uses pulses to increase the duration of the secondary current without increasing the amplitude of the secondary current beyond that induced by the first pulse:



CRCCB at 3 (reproducing '603 patent, Fig. 11, and adding annotations).

All of the embodiments above make clear that the “capability” of the secondary circuit current can be increased in a variety of ways, including by an increase in current duration without an increase in current magnitude. This is not a case where the patentee used a term “throughout

the specification in a way that was consistent with only one meaning.” *See Info-Hold, Inc. v. Applied Media Techs. Corp.*, 783 F.3d 1262, 1267 (Fed. Cir. 2015).

Turning to the remaining portion of MOTORTECH’s proposed construction, MOTORTECH originally argued its proposal “provides a frame of reference for the claimed ‘increase’ in the secondary circuit current capability—the increase must be ‘above what was generated by the previous control pulse.’” ROCCB at 35. In supplemental briefing, however, all parties agree that the claimed “increase” is “as compared to the secondary circuit current capability of the ignition transformer at the time of the first closing of the switch after the second period of time.” *See* Order No. 9; CSCCB at 2; RSCCB at 1.

For clarity, the point of comparison to which the parties have agreed comes from language earlier in claim 8. Claim 8 states that control circuit of the invention causes a switch to be “initially closed for a period of time to transfer energy to the ignition coil primary,” and “that after this time, the switch is then opened for a second period of time and then the switch is again closed.” ’603 patent at claim 8. By way of example, this point in time is illustrated by a red annotation of Figure 11:

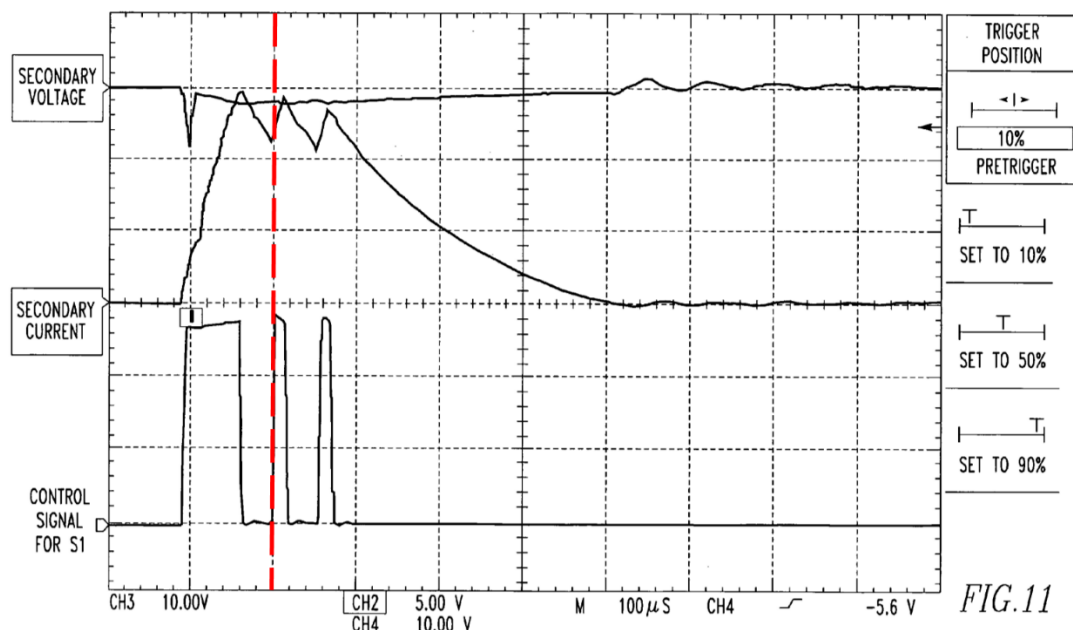


FIG.11

'603 patent, Fig. 11 (annotated).

The analysis above resolves the dispute presented by the parties. The phrase “such that the secondary circuit current capability of the ignition transformer is increased” will not be construed in this investigation to require that “[t]he amplitude and duration of the secondary circuit current of the ignition transformer are increased above what was generated by the previous control pulse,” as MOTORTECH proposes. Instead, “the secondary circuit current capability of the ignition transformer” will be construed to include “the magnitude of the secondary current in the ignition transformer, the duration of the secondary current in the ignition transformer, the spark duration created from the secondary current of the ignition transformer, or any combination thereof.” That construction is firmly grounded in the intrinsic record, which teaches using pulses for “control of both the magnitude and timing of the energy transfer,” or to “drive the secondary current higher,” or “to establish a desired total time of the spark duration.” *See, e.g.*, '603 patent at 2:26–33, 2:41–48, and 6:19–43. As agreed by the parties, “increased” secondary circuit current capability will be construed to mean an increase “as compared to the secondary circuit current capability of the

ignition transformer at the time of the first closing of the switch after the second period of time.”

See Order No. 9; CSCCB at 2; RSCCB at 1.

ii. “determined by the control circuit” (claims 1 and 8)

The disputed phrase “determined by the control circuit” appears in claims 1 and 8 of the ’603 patent. For reference, claim 1 is reproduced below with the relevant language highlighted:

1. In a capacitive discharge ignition system for an internal combustion engine comprising: a storage capacitor; a power supply connected in series with the storage capacitor; an ignition transformer having primary and secondary windings; and a controllable switch; the primary winding of the ignition transformer and the storage capacitor being connected in series through the controllable switch; a spark plug connected in series with the secondary winding of the ignition transformer; the improvement comprising **an electronic control circuit for driving the controllable switch** which is operating in synchronism with the engine such that the switch is initially closed for a period of time to transfer energy to the ignition coil primary, that after this time, the switch is then opened for a second period of time and then the switch is again closed creating a pulse train, such that **the switch is controlled by a successive string of control pulses to the switch, each of the individual pulse times having a duration and spacing as determined by the control circuit**, these pulses being arranged in time to occur when it is possible to reinforce the ringing action of the ignition transformer secondary voltage resulting from the previous primary pulses, such that the open circuit breakdown voltage capability of the ignition transformer is increased.

’603 patent, claim 1.

The parties’ positions on the dispute are summarized as follows:

Term	Altronic’s Proposed Construction	MOTORTECH’s Proposed Construction
“determined by the control circuit” (claim 1 and claim 8)	Plain and ordinary meaning.	Based upon measured behavior of the secondary (closed loop control) or based upon the use of an appropriate predefined drive pattern of primary pulses stored in a memory device (open loop control)

See Order No. 9; COCCB at 20; ROCCB at 36; EDIS Doc. ID 819268 at 1.

As shown above, Altronic asserts that this term should be given its plain and ordinary meaning. COCCB at 20–21. MOTORTECH argues that the operation of the control circuit should

be restricted to only two possible modes: one “based upon measured behavior of the secondary (closed loop control)” or one “based upon the use of an appropriate predefined drive pattern of primary pulses stored in a memory device (open loop control).” ROCCB at 36.

MOTORTECH contends that the patentee has “disavow[ed]” any form of control that is not one of the two possibilities listed in its construction. RRCCB at 14; *see also Markman Tr.* at 183:21–184:4. MOTORTECH argues that its construction is required by the following passage from the ’603 patent specification, which MOTORTECH views as definitional:

In the present invention, an electronic means is used to drive each coil in a manner as to cause the increasing voltage either based upon measured behavior of the secondary (closed loop control) or based upon the use of an appropriate predefined drive pattern of primary pulses stored in a memory device (open loop control).

RRCCB at 14 (citing ’603 patent at 6:65–7:3). MOTORTECH asserts that its construction is supported by other portions of the specification as well because the patent allegedly “discloses only two embodiments” for control: one that “operates in a closed loop manner by measuring the behavior of the circuit parameters, such as secondary voltage” and another that “operates in an open loop manner by using a stored memory map.” ROCCB at 37–38. MOTORTECH contends that “[t]he specification discloses no other methods by which the control circuit determines pulse timing.” *Id.* at 38.

I find that the patentee did not limit the invention to providing control based on only two possible modes, as MOTORTECH asserts. MOTORTECH appears to acknowledge that the claim language in question is broad enough to cover an invention that uses multiple methods of determining appropriate control pulses. *See* RRCCB at 15 (“claims 1 and 8 encompass both [closed loop and open loop] methods” in the same invention). Given the clarity of the words of the claim, “[t]here are only two exceptions” that could allow deviation from affording the claim the full breadth of its plain meaning: “1) when a patentee sets out a definition and acts as his own

lexicographer, or 2) when the patentee disavows the full scope of a claim term either in the specification or during prosecution.” *Thorner v. Sony Computer Ent. Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012). As discussed below, neither exception applies here.

First, to act as a lexicographer, a patentee must “clearly set forth a definition *of the disputed claim term*” other than its plain and ordinary meaning. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002) (emphasis added). The passage of the ’603 patent cited by MOTORTECH speaks of “an electronic means . . . used to drive each coil . . . based upon” certain factors, while the disputed claim term here is “an electronic control circuit for driving the controllable switch” using pulse attributes “determined by the control circuit.” Compare ’603 patent at 6:65–7:3 *with id.* at claim 1. The specification passage cited by MOTORTECH gives no definition for “control circuit” and no definition for what it means to “determine” pulse attributes. There is no lexicography here.

The standard for disavowal of claim scope is similarly exacting. It requires “a clear and explicit statement by the patentee.” *Thorner*, 669 F.3d at 1366. Although MOTORTECH points to a statement in the specification that describes features “[i]n the present invention,” the use of the phrase “present invention” is not always limiting, and particularly is not so where other portions of the intrinsic evidence do not support applying the limitation to the entire patent. *Cont’l Circuits LLC v. Intel Corp.*, 915 F.3d 788, 798 (Fed. Cir. 2019). As shown below, several portions of the ’603 patent show the invention as a whole is not limited in the manner MOTORTECH asserts.

Beginning with the words of the relevant claims, claims 1 and 8 describe “an electronic control circuit for driving the controllable switch.” The specification provides a broad description of the electronic control circuit, stating that it “may comprise a programmable microcontroller.” ’603 patent at 3:58–64. The specification explains that the microcontroller may have various input

ports, including inputs for sensing “the current and/or voltage in the secondary circuit of at least one ignition transformer” and “input ports for sensing one or more positions relative to the rotation of the crank shaft.” *Id.* These disclosures describe an invention capable of making a range of determinations based on a variety of factors, not just a determination “based upon measured behavior of the secondary” circuit or “based upon the use of an appropriate predefined drive pattern of primary pulses stored in a memory device,” as MOTORTECH contends.

The ’603 patent specification also teaches that the invention can determine control actions based on a combination of sensed conditions and predefined drive patterns stored in a memory device. Specifically, the patent teaches:

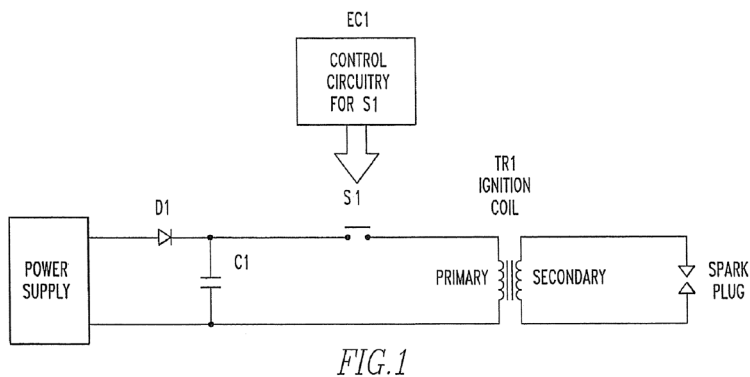
Preferably, the control circuit for the controllable switch causes the switch to be opened and closed a variable number of times during each firing event **until a spark breakdown is sensed**. Preferably, the controllable switch causes the switch to be opened and closed a variable number of times **up to a maximum number** during each firing event to limit the highest available breakdown voltage of the coil.

’603 patent at 2:8–14. As this passage demonstrates, the same circuitry in the invention can make a determination based on when “a spark breakdown is sensed” and make a determination by counting pulses up to a “maximum number.” The circuitry is not limited to a particular type of control.

Similarly, in another embodiment, the control circuit is disposed to “always send[] at least one more pulse after the one causing the secondary voltage breakdown” as “a safety margin on operating voltage.” *Id.* at 5:39–42. Again, this embodiment senses the secondary voltage breakdown and takes an action based on that measurement, but it also takes a pre-programmed action—sending one more pulse after the one causing the breakdown. The kind of determination made by the control circuit in this embodiment is not limited to one or the other of the categories in MOTORTECH’s proposed construction.

The embodiments, structures, and methods described above cut against MOTORTECH's contention that there are "no other methods by which the control circuit determines pulse timing" beyond the two exclusive alternatives in its proposed construction. *Cf.* ROCCB at 38.

Moreover, MOTORTECH's restrictive understanding of "closed loop control" is contradicted by the specification. MOTORTECH contends that "closed loop control" can only be based on "measured behavior of the secondary." But the '603 patent specification discloses embodiments that perform closed loop control by sensing conditions in other parts of the circuit, not just the secondary. For example, one embodiment determines whether the breakdown voltage has been achieved by "measuring the drop in the storage capacitor voltage." '603 patent at 5:64–6:3. As shown in Figure 1 of the '603 patent, the storage capacitor is part of the primary circuit to the left of the ignition coil, not part of the secondary circuit to the right of the ignition coil:



Id. at Fig. 1. The specification also broadly teaches the occurrence of the spark breakdown "could be sensed a number of ways, for example, by capacitive or transformer coupling to a low voltage circuit." *Id.* at 5:47–51. A low voltage circuit is distinct from "the secondary" circuit in MOTORTECH's proposed construction. To the extent that MOTORTECH's construction would prohibit using measurements from a low voltage circuit in making control decisions, it is not consistent with the breadth of disclosure in the patent specification.

Viewing the written description as a whole, MOTORTECH's position is "contradicted by a number of express statements" in the specification. *See Praxair, Inc. v. ATMI, Inc.*, 543 F.3d 1306, 1326 (Fed. Cir. 2008). In such circumstances, there is no disavowal. *See id.*

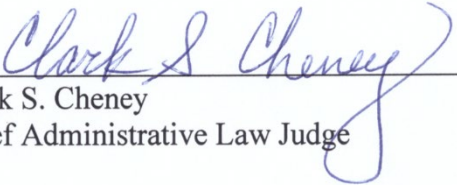
MOTORTECH's other arguments do not lead to a different result. MOTORTECH contends that "[t]he claims specify only two methods of operation of the control circuit," pointing to the recitation of "closed loop" control in dependent claim 6 and "open loop" control in dependent claim 7. ROCCB at 37. If anything, dependent claims 6 and 7 reinforce the breadth of independent claim 1. The fact that the patentee used express language of restriction in dependent claims 6 and 7 counsels against finding a related restriction to be silently implied in independent claims 1 and 8. *See Phillips*, 415 F.3d at 1314 ("Differences among claims can also be a useful guide in understanding the meaning of particular claim terms."); *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 910 (Fed. Cir. 2004) ("where the limitation that is sought to be 'read into' an independent claim already appears in a dependent claim, the doctrine of claim differentiation is at its strongest") (quoting *Sunrace Roots Enter. Co. v. SRAM Corp.*, 336 F.3d 1298, 1302–03 (Fed. Cir. 2003)).

MOTORTECH also cites the unpublished decision in *Wastow Enterprises, LLC v. Truckmovers.com, Inc.* in support of its position. ROCCB at 38 (citing 855 Fed. App'x 748 (Fed. Cir. 2021)). *Wastow Enterprises* is readily distinguished. The intrinsic record in *Wastow Enterprises* "repeatedly" described the present invention as having a certain feature and the specification did not use the disputed claim term "more broadly when referring to the inventive structure." *Wastow Enterprises*, 855 F. App'x at 750–51. Here, MOTORTECH points only to a single passage prefaced with "the present invention," and disregards other broader teachings and

descriptions in the specification that are inconsistent with MOTORTECH's proposed construction, as noted above.

“The patentee is free to choose a broad term and expect to obtain the full scope of its plain and ordinary meaning unless the patentee explicitly redefines the term or disavows its full scope.” *Thorner*, 669 F.3d at 1367. MOTORTECH has not shown here that the intrinsic record clearly limits the scope of the claim term “determined by the control circuit.” This term will be accorded its plain and ordinary meaning in this investigation.

SO ORDERED.



Clark S. Cheney
Chief Administrative Law Judge

CERTIFICATE OF SERVICE

I, Lisa R. Barton, hereby certify that the parties listed have entered an appearance in the above captioned investigation, and a copy of the PUBLIC CERTIFICATE OF SERVICE was served upon the following parties via first class mail and air mail where necessary.

Document	Security	Document Type	Official Rec'd	Title
825921	Public	Order	07/15/2024 12:11 PM	Claim Construction Order

Service Date: July 15, 2024

/s

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