PUBLIC VERSION

UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, DC

Before The Honorable Clark S. Cheney
Chief Administrative Law Judge

In the Matter of CERTAIN CAPACITIVE DISCHARGE IGNITION SYSTEMS, COMPONENTS THEREOF, AND PRODUCTS CONTAINING THE SAME	Investigation No. 337-TA-1390

COMPLAINANT'S PRE-HEARING BRIEF

limitations added by those claims are conventional, or that their ordered combination with the limitations of the independent claims lacks an inventive concept. It would be inappropriate for Motortech or its expert to make any such arguments at the evidentiary Hearing.

2. Alleged Prior Art

Per recent correspondence, it is Complainant's understanding that Respondents intend to rely on the following invalidity arguments based on obviousness grounds (and none on anticipation):

- Research Disclosure in view of U.S. Patent No. 4,181,112 (Grather);
- U.S. Patent No. 6,701,904 ("the '904 patent") in view of Grather; and
- Research Disclosure in view of U.S. Patent No. 5,170,760 (Yamada).

(a) The Research Disclosure Document

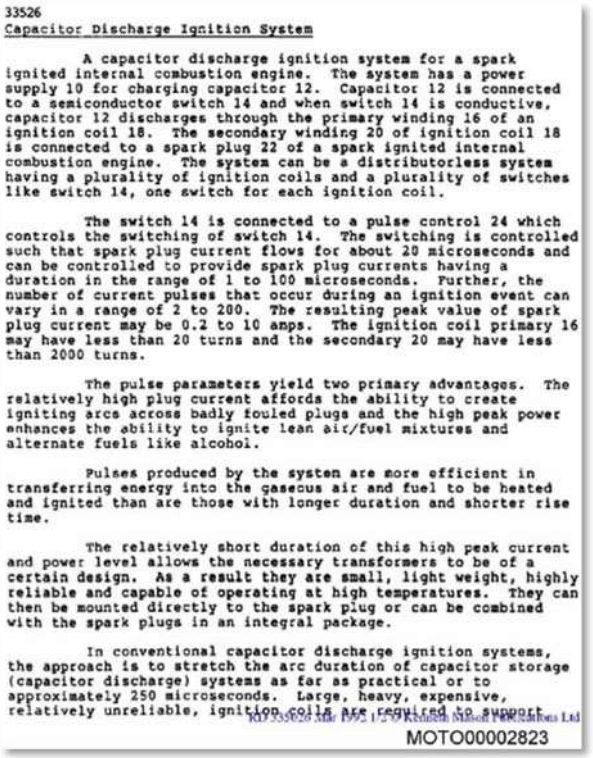
The reference that serves as the primary reference for two of its theories is one that Motortech's expert, Dr. Ehsani, refers to as "Research Disclosure."[12] However, to be a prior art "printed publication" the reference must be sufficiently accessible the public interested in the art. *In re Klopfenstein*, 380 F.3d 1345, 1348 (Fed. Cir. 2004) (citation omitted). The standard for public accessibility is whether interested members of the relevant public could locate the reference by reasonable diligence. *Valve Corp. v. Ironburg Inventions Ltd.*, 8 F.4th 1364, 1376 (Fed. Cir. 2021). *See Weber, Inc. v. Provisur Techs., Inc.*, 92 F.4th 1059, 1067 (Fed. Cir. 2024). Whether the reference was indexed or catalogued can indicate public accessibility, as can evidence that persons of skill in the art have reasonably found and accessed the reference. There is no evidence of these scenarios with respect to Research Disclosure and, for this reason alone,

[12] Dr. Ehsani cites this document as follows: "Capacitor Discharge Ignition System," Research Disclosure, Database No. 335026 (Mar. 1992). This document was produced at production number range MOTO00002822-2824. RX-0036.

this document should not be considered prior art.

In an attempt to correct this deficiency, Dr. Ehsani has offered an opinion that "Research Disclosure was available as of March 1992 to a POSA interested in locating it." RX-0361 (Ehsani Report) at ¶ 40. For the reasons stated below, the available evidence does not show that the Research Disclosure document was available to POSA interested in locating it as of March 1992, or at any time prior to the February 2, 2007, priority date of the '603 patent. Accordingly, Research Disclosure is not prior art to the '603 patent.

At the outset, the Research Disclosure document has less than two pages of substantive text and appears to be incomplete. RX-0036. It has no identified author, and there is no date that appears in the same typeface and color as the substantive content. There is a "Mar 1992" date stamp in a different typeface and color that was plainly added to the document at some unspecified later date, along with the cover page. *Id.*



33526
Capacitor Discharge Ignition System

A capacitor discharge ignition system for a spark ignited internal combustion engine. The system has a power supply 10 for charging capacitor 12. Capacitor 12 is connected to a semiconductor switch 14 and when switch 14 is conductive, capacitor 12 discharges through the primary winding 16 of an ignition coil 18. The secondary winding 20 of ignition coil 18 is connected to a spark plug 22 of a spark ignited internal combustion engine. The system can be a distributorless system having a plurality of ignition coils and a plurality of switches like switch 14, one switch for each ignition coil.

The switch 14 is connected to a pulse control 24 which controls the switching of switch 14. The switching is controlled such that spark plug current flows for about 20 microseconds and can be controlled to provide spark plug currents having a duration in the range of 1 to 100 microseconds. Further, the number of current pulses that occur during an ignition event can vary in a range of 2 to 200. The resulting peak value of spark plug current may be 0.2 to 10 amps. The ignition coil primary 16 may have less than 20 turns and the secondary 20 may have less than 2000 turns.

The pulse parameters yield two primary advantages. The relatively high plug current affords the ability to create igniting arcs across badly fouled plugs and the high peak power enhances the ability to ignite lean air/fuel mixtures and alternate fuels like alcohol.

Pulses produced by the system are more efficient in transferring energy into the gaseous air and fuel to be heated and ignited than are those with longer duration and shorter rise time.

The relatively short duration of this high peak current and power level allows the necessary transformers to be of a certain design. As a result they are small, light weight, highly reliable and capable of operating at high temperatures. They can then be mounted directly to the spark plug or can be combined with the spark plugs in an integral package.

In conventional capacitor discharge ignition systems, the approach is to stretch the arc duration of capacitor storage (capacitor discharge) systems as far as practical or to approximately 250 microseconds. Large, heavy, expensive, relatively unreliable, ignition coils are required to support

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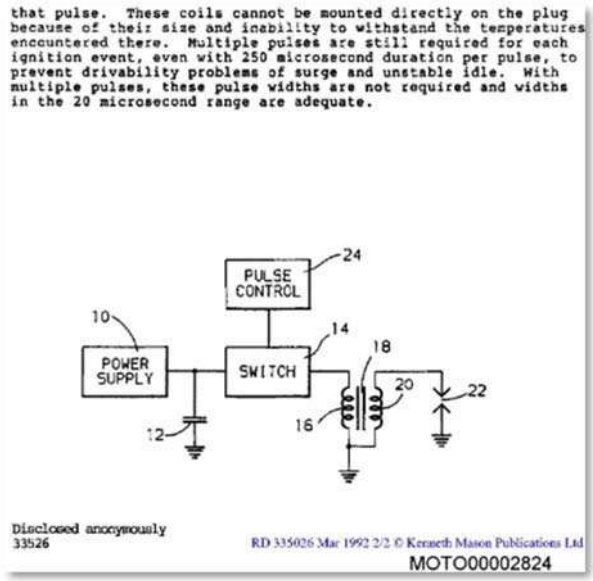

that pulse. These coils cannot be mounted directly on the plug because of their size and inability to withstand the temperatures encountered there. Multiple pulses are still required for each ignition event, even with 250 microsecond duration per pulse, to prevent drivability problems of surge and unstable idle. With multiple pulses, these pulse widths are not required and widths in the 20 microsecond range are adequate.

Disclosed anonymously
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RD 335026 Mar 1992 2/2 © Kenneth Mason Publications Ltd

MOTO00002824

RX-0036.

Dr. Ehsani has opined that Research Disclosure includes a "International Standard Serial Number (ISSN 0374-4353) identifying Research Disclosure." RX-0361 (Ehsani Report) at ¶ 40. But Dr. Ehsani provides no explanation or evidence showing that the mere existence of an ISSN shows that a particular publication was in fact published. Further, Motortech has not demonstrated, as is its burden, what information it believes and ISSN number conveys, if any. However, the existence of an ISSN provides no information on *when* any particular document was published, in what form it was (allegedly) published, and how (if it all) it would have been available to a member of the public during the relevant time period.[13]

Dr. Ehsani goes on to state that "[i]t is my understanding that the publication "Research Disclosure" is published by Kenneth Mason Publications Ltd. Pages 1 and 2 of Research Disclosure incudes a database number and a publisher." Ehsani Report at ¶ 40. Again, this information, even if true, does not provide a sufficient basis for a conclusion that this document was published before February 2007 or that a POSA could have accessed this document as required to be considered prior art. The cover page that contains this information was obviously generated later (for example it includes a website address that is unlikely to have existed in 1992), and it includes nothing that Altronic's expert has opined that a POSA would consider helpful (from the viewpoint of someone with decades of experience in the field with technical and scientific publications and not opining directly on legal evidentiary issues) or that the document was actually available to interested researchers as of February 2007. Moreover, no copy of the March 1992 publication in which the Research Disclosure document was allegedly

[13] https://www.issn.org/understanding-the-issn/what-is-an-issn/ (For example, "[i]t is a digital code without any intrinsic meaning: it does not include any information about the origin or contents of the publication; it does not guarantee the quality of validity of the contents."

published is cited in the Ehsani Report or has otherwise been produced in this litigation. That it was not produced and does not appear to be available is further evidence that it was not accessible to a POSA during the relevant time period. Altronic's expert also personally searched online for this document and was unable to locate it. CX-0417C at ¶ 71. For all the foregoing reasons, Motortech has been unable to produce evidence that the Research Disclosure document was accessible to interested POSA before the priority date, and thus it is not prior art.

Finally, Altronic's expert noted that, in his decades of experience with scientific and technical research and publications, he has never heard of any "Research Disclosure" journal, and never heard of anyone else in the field speak of it, much less rely on it as a source of technical information. CX-0417C at ¶ 72. Testimony will also show that no Altronic witness knew of it and had they, it is not a document that would have been helpful or instructive.

However, should the CALJ disagree and find that the Research Disclosure can be considered prior art to the '603 patent, the document substantively fails to constitute prior art. As noted above, Research Disclosure includes just over a page of text and a single figure. This fragmentary document discloses what appears to be an aspirational circuit that purportedly produces an enormously large range of current levels, ranging from 0.2 amps to a tremendous 10 amps. RX-0036 at 2. Altronic's expert will explain that a 10 amp current would have destructive effects on the circuitry in any ignition system with which he is familiar. CX-0417C at ¶ 73. Altronic's witnesses will explain that the document's mention of currents of this unrealistic magnitude would convey to a POSA that Research Disclosure is not a serious source of technical information.

The tremendous range of currents is purportedly achieved through the use of switch-generated pulses that allow current to flow across the spark plug "for about 20 microseconds,"

although the same sentence is internally inconsistent in that it says the switching "can be controlled to provide spark plug currents having a duration in the range of 1 to 100 microseconds." RX-0036. Research Disclosure says the pulses are controlled by "pulse control 24" but does not further describe the control mechanism, whether it's an SCR or some other prior art control system. RX-0036. There is no disclosure of an electronic control circuit, and certainly not that of the '603 patent. Instead, Research Disclosure indicates that the physical characteristics of the coil winding determine the duration of the current. *Id.* ("The relatively short duration of this high peak current and power level allows the necessary transformers to be of a certain design. As a result, they are small, light weight, highly reliable and capable of operating at high temperatures."). RX-0036.

Dr. Eisenstadt will explain that Research Disclosure thus reflects the conventional wisdom pre-February 2007, that spark duration is ultimately a function of the physical characteristics of the coil. *See also* RX-0036 at 2 ("In conventional capacitor discharge ignition systems, the approach is to stretch the arc duration of capacitor storage (capacitor discharge) systems as far as practical or to approximately 250 microseconds. Large, heavy, expensive, relatively unreliable, ignition coils are required to support that pulse."). The '603 patent expressly referenced this conventional wisdom and—through the invention described and claimed in the patent—demonstrated it to be untrue. JX-0001 at 4:34-37 ("It is generally accepted that the maximum output voltage of the coil is limited by the primary voltage and the turns ratio of the primary to the secondary winding. ***It will be shown that this is not the case***.").

Further, in describing "conventional capacitor discharge ignition systems," Research Disclosure states that "the approach is to stretch the arc duration of capacitor storage (capacitor discharge) system as far as possible or to approximately 250 microseconds." RX-0036. But, as

the evidence will show, as of 2007 this supposed maximum arc duration was less than the minimum required for standard CDI (capacitor discharge ignition) systems—yet more reason that a POSA would not treat Research Disclosure as a serious technical document.

The multiple pulses contemplated in Research Disclosure would necessarily result in multiple spark events—thus Research Disclosure appears to be effectively cumulative of a prior art multi-strike system that the '603 patent improved upon. CX-0417C at ¶ 76. Research Disclosure has no disclosure whatsoever of reinforcing the ringing action of the secondary voltage, much less of doing so by adding energy during the ignition transformer secondary voltage ringing down cycle.

Overall, Research Disclosure is not a reliable or self-enabling[14] source of technical information, and thus not the type of document upon which a technical expert can appropriately rely. In scientific and technical endeavors, peer review, repeatability, transparency, and verifiability are key indices of reliability. Academic and technical papers, for example, have identified and verifiable authors (who typically have to disclose conflicts of interest) and are subject to either formal or informal peer review prior to and sometimes also after publication. Patents have named inventors, are examined in an impartial process, and are governed by robust and well-understood laws regarding what an applicant must disclose. Even fairly informal conference presentations have a degree of rigor associated with them, because the presenter is known and must be accountable to the audience for the information presented.

None of the indices of reliability are present in Research Disclosure. It is an anonymous

[14] Although "even though a non-enabling reference can play a role in an obviousness analysis, the evidence of record must still establish that a skilled artisan could have made the claimed invention." *Raytheon Techs. Corp. v. Gen. Elec. Co.,* 993 F.3d 1374, 1381 (Fed. Cir. 2021). No such evidence is present in this case.

document, that was subject to no apparent review. As discussed above, its fragmentary disclosure includes aspects that a POSA would view as nonsensical. There is not enough information disclosed for its "teachings," such as they are, to be meaningfully applied or reproduced. In short, even if Research Disclosure is deemed to have been published in some way, it is not the type of document that either an expert or a POSA would view as a legitimate source of technical information. The Research Disclosure should be rejected as prior art.

(b) U.S. Patent No. 4,181,112 ("Grather")

U.S. Patent No. 4,181,112, titled "High-Voltage Ignition System to Generate a Spark for an Internal Combustion Engine, and Method to Generate the Spark Energy" issued in 1980 from an application that was filed in 1977. RX-0315. Notably, Grather is not directed to a CDI. Instead, Grather describes a charge-accumulator based system, in which "[s]equentially generated charge pulses are applied to the spark gap through a diode…causing a build-up of charge accumulation as a result of the sequentially applied charges, until the gap breaks down." RX-0315 at Abstract. This system requires the use of a high-voltage diode that is "connected in series with the ignition coil and the spark gap to prevent bleed-off, or back-flow of accumulated charge at the spark gap." RX-0315 at 1:65-68. This means that current can flow only one way—unlike the circuit disclosed and claimed in the '603 patent.

Grather has no disclosure of reinforcing the ringing action of the secondary voltage, much less of doing so by adding energy during the ignition transformer secondary voltage ringing down cycle. To the contrary, Grather discloses pulses of constant frequency, which teaches away from the reinforcing pulses of arbitrary frequency that are described in the '603 patent. RX-0315 at 5:11 ("The frequency of the pulse sequence D is constant…").

As Altronic's expert will explain, Grather discloses a completely different type of system from the type described and claimed in the '603 patent. Rather being a CDI, Grather's system