

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

STIHL INCORPORATED and ANDREAS STIHL AG & CO. KG,
Petitioner,

v.

ELECTROJECT TECHNOLOGIES, INC.,
Patent Owner.

Case IPR2018-00018
Patent 6,955,081 B2

Before JOSEPH A. FISCHETTI, MEREDITH C. PETRAVICK, and
WILLIAM V. SAINDON, *Administrative Patent Judges*.

SAINDON, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

Stihl Incorporated and Andreas Stihl AG & Co. KG, (“Petitioner”) filed a Petition requesting an *inter partes* review of claims 1–18 of U.S. Patent No. 6,955,081 B2 (Ex. 1001, “the ’081 patent”). Paper 1 (“Pet.”). Electrojet Technologies, Inc., (“Patent Owner”) filed a Preliminary Response. Paper 21 (“Prelim. Resp.”).

We have authority under 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted unless the information presented in the Petition and the Preliminary Response shows that “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314; *see also* 37 C.F.R § 42.4(a) (“The Board institutes the trial on behalf of the Director.”). Taking into account the arguments presented in the Preliminary Response, we conclude that the information presented in the Petition establishes a reasonable likelihood that Petitioner would prevail with respect to all challenged claims. Accordingly, we institute an *inter partes* review for claims 1–18 of the ’081 patent.

A. Related Matters

The parties identify the following matters related to the ’081 patent (Pet. 1; Paper 5, 1):

Electrojet Technologies, Inc. v. Stihl Incorporated and Andreas Stihl AG & CO. KG, Case No. 2:17-cv-00224-RAJ-DEM (E.D.Va.).

In addition, Petitioner has filed a petition challenging Patent Owner’s U.S. Patent No. 7,225,793 patent in IPR2018-00022, which Patent Owner characterizes as “related to” the ’081 patent and Petitioner characterizes as

“claim[ing] priority to the same original parent application . . . and shares much of the same disclosure.” Paper 5, 1; Pet. 1–2.

B. The '081 Patent

The '081 patent describes the invention as “an intake air pressure sensor assembly for an internal combustion engine . . . for determining intake air mass and controlling the fuel injectors and ignition timing of said engine.” Ex. 1001 1:21–25. It is known “that air intake pressures fluctuate with the opening and closing of the intake valves [of the cylinder] during the intake stroke [of the piston].” *Id.* at 2:18–20. The air intake pressures are “understood in the art . . . [to] be used for intake air mass calculations in fuel injection control.” *Id.* at 2:33–35. As to ignition timing, the '081 patent states that crankshaft and camshaft position measurements were typically used to determine the angular position of the engine. *Id.* at 2:55–3:37. The aim of the '081 patent is to utilize the intake air pressure sensor to perform the functions of these other sensors, to measure engine timing and intake air mass, which represents a reduction in the total number of sensors required to run a fuel-injected engine. *Id.* at 3:65–4:19.

C. Challenged Claims

Petitioner challenges claims 1–18 of the '081 patent. Independent claim 1 is reproduced below.

1. An engine control apparatus for determining engine position and intake air mass from a single sensory means, comprising:
 - (a) an engine having at least one cylinder, a piston in said cylinder, a crankshaft connected to said piston, said piston being adapted to reciprocate between top dead center position and bottom dead center position defining a combustion chamber, an intake valve controlling the induction of an air mass into said combustion chamber with predetermined

- timing related to said crankshaft's angular position, said engine air induction system having its chamber contiguous with said valve and said engine combustion chamber, a pressure sensing element in communication with said air induction chamber;
- (b) a pressure sensor means for developing periodic sensor voltage timing pulses, the cycle time between timing pulses being an indication of engine crankshaft speed, and the pulse timing being an indication of a particular crankshaft degree of angular position;
 - (c) a pressure sensor means for measuring intake air mass for the determination intake air mass;
 - ([d])¹ a means for measuring in real-time, intake air pressure, cycle time, and crankshaft position.

D. Prior Art and Asserted Grounds

Petitioner asserts the following obviousness grounds:

References	Claims Challenged
Abe ² and Kupske ³	1–12, 14–16, and 18
Abe, Kupske, and knowledge of POSA ⁴	13 and 17

¹ This limitation appears as “(c)” in the original claim. We have modified it for clarity to “(d)” to avoid duplicative lettering of claim elements.

² U.S Patent No. 4,866,620, iss. Sept. 12, 1989 (Ex. 1004).

³ DE 101 16 485 A1, published Oct. 10, 2002 (Ex. 1006) (certified translation).

⁴ “Person of Ordinary Skill in the Art.” Petitioner states that the ’081 patent “expressly admits that [a crank trigger] was well known [to a POSA].” Pet. 42 (citing Ex. 1001, 3:13–15; Ex. 1010, 103–105) (Ex. 1001, 3:13–15 (“[m]any small engines utilize a crankshaft trigger mechanism for indicating a predetermined crankshaft position for ignition purposes.”)).

References	Claims Challenged
Ostdiek ⁵ and Vernier ⁶	1, 3, 5, 6, 8, 10–12, and 14
Ostdiek, Vernier, and knowledge of POSA ⁷	2, 4, 7, 9, 13, and 15–18

Pet. 4.

II. PATENTABILITY ANALYSIS

A. Claim Construction

Petitioner sets forth its proposed claim constructions for several means-plus-function terms. Pet. 9–16. Patent Owner does not dispute at this time Petitioner’s proposed constructions. We have reviewed Petitioner’s proposed constructions and consider them reasonable, on this record, for the reasons set forth in the Petition. We adopt Petitioner’s proposed constructions, set forth below:

Claim(s) or Claim Element	Term	Construction
1(b)	“pressure sensor means for developing periodic sensor voltage timing pulses”	“an intake pressure sensor in combination with an ECU for performing the function of developing periodic sensor voltage timing pulses”

⁵ U.S Patent No. 45,092,301, iss. Mar. 3, 1992 (Ex. 1007).

⁶ U.S Patent No. 5,261,369, iss. Nov. 16, 1993(Ex. 1008).

⁷ As explained in our discussion below, we need not reach the merits of Petitioner’s assertions regarding the scope of the knowledge of a person of ordinary skill in the art. Thus, we do not list here the specific knowledge relied upon by Petitioner.

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