UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ZF NORTH AMERICA, INC., ZF ACTIVE SAFETY US INC.,
Petitioners,

v.

STONERIDGE CONTROL DEVICES, INC.,
Patent Owner.

IPR2023-00273
Patent No. 7,021,415 B2

PETITIONERS' REPLY TO THE PATENT OWNER'S RESPONSE UNDER 37 C.F.R. § 42.23

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EXHIBITS

Previously filed:

Ex. 1001:	U.S. Patent No. 7,021,415 ("the '415 Patent")
Ex. 1002:	Expert Declaration of Dr. Bruno Lequesne
Ex. 1003:	Curriculum Vitae of Dr. Bruno Lequesne
Ex. 1004:	Certified File History of the '415 Patent
Ex. 1005:	European Patent No. EP 1578633
Ex. 1006:	European Patent No. EP 1578633 opposition proceedings
Ex. 1007:	Certified translation of German Patent No. DE 19732168 ("Poertzgen")
Ex. 1008:	German Patent No. DE 19732168
Ex. 1009:	U.S. Patent No. 6,179,097 ("Schumann")
Ex. 1010:	U.S. Patent No. 6,098,948 ("Boucheret")
Ex. 1011:	U.S. Patent No. 6,390,247 ("Drennen")
Ex. 1012:	Certified translation of PCT Publication No. WO 00/61962 ("Weiler")
Ex. 1013:	PCT Publication No. WO 00/61962
Ex. 1014:	*An Introduction to Modern Vehicle Design*, Happian-Smith, Julian (2001)
Ex. 1015:	*Gear Types & Manufacturing*, Stock Drive Products/Sterling Instrument
Ex. 1016:	*Gears and Gear Drives*, Motion System Design, A145-A160 (2001)
Ex. 1017:	*Dudley's Gear Handbook*, Townsend, Dennis P. (1991)
Ex. 1018:	U.S. Patent No. 1,971,417

Ex. 1019: Declaration of Dr. Carrie Gardner authenticating Exs. 1014, 1016, and 1017

Ex. 1020: April 12, 2023 Authorization from Board to File Reply to POPR

Newly Presented:

Ex. 1021: Reply Declaration of Dr. Bruno Lequesne

Ex. 1022: Deposition of Dr. Jeffrey Stein

Ex. 1023: Exhibit 4 to Ex. 2007 deposition of Dr. Bruno LeQuesne

I. INTRODUCTION

Petitioner respectfully submits this reply in support of its petition for *inter partes* review of U.S. Patent No. 7,021,415 ("the '415 patent").

Patent Owner ("PO") is in an untenable position. It disclaimed all claims that failed to recite an isolator, essentially conceding their unpatentability. However, the isolators (basically cushions) recited in the remaining claims are used in exactly the way isolators have always been used in auto parts to achieve the expected result: dampening NVH. Neither PO nor its expert even attempt to argue that the '415 patent describes a new isolator, or uses an isolator in an unexpected way to achieve an unexpected result. The recited isolators, like all isolators, dampen the transmission of NVH between whichever parts the isolators are placed.

PO is not helped by the claim language, which recites only generic isolators: they can literally be of any shape, size, material, density, hardness, damping ability, tolerances, etc., and still fall within the claims. The patent disclosure also lacks detail; it fails even to set forth a list of suitable materials. Any and all specifics with respect to the selection and design of isolators is left to the discretion of the skilled artisan, demonstrating that the '415 patent places far more trust in the POSITA's ability to implement isolators than does PO's expert and lawyers.

In addition to dumbing down the POSITA, PO repeatedly attempts to distinguish the prior art based on unclaimed features, never discussed in the '415

patent. For example, PO argues that isolators would not be added to Poertzgen because it allegedly requires strict tolerances (hard-mounting) that are potentially incompatible with isolators. But, the '415 patent says nothing about how to select an isolator to meet any tolerance requirements. The claims cover isolators of any hardness or tolerances in hard-mounted or soft-mounted actuators. In short, the patent utterly fails to delineate any of the issues PO now suggests must be traversed.

PO also argues that Boucheret, teaching that isolators between an electric motor and a housing in a vehicle can dampen NVH emanating from the motor, has no applicability to Poertzgen. This is allegedly because Boucheret runs at constant speeds vs. in short bursts like Poertzgen and is unconcerned (!) with mechanical tolerances. To begin, these alleged differences are largely fictitious. But even if distinctions exist, they are not meaningful.

The concept being taken from Boucheret is a basic one: placing isolators between components will dampen the transmission of NVH between those components. The fact that Boucheret uses multiple isolators, and places them between an electric motor and its surrounding parts in a vehicle (as does the '415 patent) makes it only more relevant (evidenced by PO's struggle to try to distinguish it), but the concept of using isolators would have been applicable even if Boucheret had a context that wasn't exactly that of Poertzgen and the '415 patent.

A *skilled* artisan would be able to apply that concept to Poertzgen, or any other actuator. The POR imagines reasons why isolators will ruin an actuator (reasons unaddressed in the '415 patent), but fails to give the POSITA the credit they deserve. A POSITA trying to *successfully* apply an isolator to an actuator (the claims require no particular degree of performance from its isolators) would have had the engineering skills to do so. As to the location of such isolators, a POSITA likewise would readily identify motors and gears as sources of NVH. Placing isolators along surrounding paths where the NVH could be transmitted would have been obvious, indeed natural.

PO raises arguments about whether the art contains a "sub-frame" or a "housing," but these arguments improperly import limitations into the claims. In any event, the prior art teaches the nonexistent claim limitations, as well.

PO also references alleged secondary indicia of nonobviousness, but does not come close to making the required showing of nexus.

II. ARGUMENT

A. Motivation Existed to Apply Isolators, such as in Boucheret, to Poertzgen

The Petition clearly sets forth various motivations for applying Boucheret's teaching of isolators to reduce the transmission of NVH to Poertzgen. Pet. 37-49. At root, the motivation for using an isolator, as it always has been, is to reduce the transmission of NVH. Ex. 1002, ¶¶ 49-52, 57, 69-70, 160-166; Ex. 1010, 3:20-22

("These damping elements are adapted to serve as vibration dampers, in particular between the electric motor and the housing"). As explained in the Petition:

> Placing a resilient isolator between an electric motor (indeed, any component that might have NVH) and the components to which it is mounted or abuts is nothing more than the use of a known technique (having an isolator between components to reduce NVH) to improve a similar device (Poertzgen's actuator which has a motor mounted to other actuator components) in the same way (NVH is dampened).

Pet. 37, 41. The Petition also explained: "Isolators and their benefits, *i.e.*, reducing the transmission of NVH, were well known.… The placement of an isolator between any two components can dampen the transmission of NVH between those components." Pet. 43; Ex. 1002, ¶ 185; *see also id.*, ¶¶ 49-52, 172.

1. Isolators may be added to Poertzgen's Actuator

PO first argues that Poertzgen's actuator, allegedly a "hard-mounted" electronic parking brake actuator (EPBA) requiring some degree of precision, is particularly ill-suited to having any isolators, because they will ruin the (unquantified) tight tolerances. POR 25, 31-32. This argument finds no support in the prior art or the '415 patent. Ex. 1021, ¶ 2; Ex. 1022, 176:21-177:11 (none of the prior art discusses the "drawbacks" of isolators Dr. Stein surmises exist). Indeed, the '415 patent is silent as to any difficulties that must allegedly be overcome when using isolators in EPBAs and the claims require no particular tolerances, no "hard-mounting" or "soft-mounting", and no particular shape, size, or material of isolator. Ex. 1021, ¶ 5; Ex. 1022, 141:14-142:21, 147:16-23. *See Muniauction, Inc. v.*

Thomson Corp., 532 F.3d 1318, 1327 n. 3 (Fed. Cir. 2008) (patentee's argument that a POSITA could not implement the combination was undermined by the lack of implementation description in the patent itself).

If, as PO posits (POR 32), isolators ruin the tolerances needed for an EPBA, making such systems "worse and even lead[ing] to vibrations," then that is a shortcoming of the alleged invention itself, not a reason that the claims are patentable. Even if better (unclaimed) options for reducing NVH existed, this does not preclude a motivation for also practicing the claimed, less optimal isolators. *See In re Mouttet*, 686 F.3d 1322, 1333-34 (Fed. Cir. 2012) (existence of alternatives "does not mean that an inferior combination is inapt for obviousness purposes"); *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994).

But even PO's expert does not say that isolators could not successfully be added to Poertzgen. Read carefully, his report at most says that isolators *could* be added in such a slipshod manner as to harm the effectiveness of certain embodiments of the overall device, but this is true of any modification to any component. *See*, *e.g.*, Ex. 2005, ¶ 80 ("Introducing vibration isolators into Poertzgen would permit unwanted movement between components *potentially creating* out of tolerance interactions …."), ¶ 81 ("Introducing isolators … *may* lead to vibrations …"), ¶ 83 (stating that "any misalignment in component parts or undue vibrations … *could* make it such that operating Poertzgen's motor … will not result in movement of its

nut by X distance."), ¶ 86 ("Introducing isolators … and therefore introducing *potential* movements, misalignments, etc., would undermine …."), ¶ 87 ("Introducing isolators … *could* introduce misalignments and relative movement …."), ¶ 116 (same).

The fact that known techniques, such as placing passive isolators between components to reduce NVH, can be implemented shoddily does not render them less obvious. Ex. 1021, ¶¶ 6-7. The Petition explained that the POSITA, having two years of experience[1], would be intimately familiar with gear trains and isolators and their operation and implementation. Ex. 1002, ¶ 42-52; Ex. 1021, ¶ 3; Ex. 1022, 116:20-121:4. A background textbook even described the types of passive isolators claimed in the '415 patent as "simple." Ex. 1014, 198; Ex. 1021, ¶ 12.

Moreover, premises of PO's argument, i.e., that Poertzgen must be hard-mounted, have a particular tolerance, measure clamping distance in a particular way, etc. are not supported. PO errs in treating preferred embodiments of the prior art as the only teaching of the reference. *See*, *e.g.*, Ex. 1007, 3:17-20 (cited in Ex. 2005, ¶ 81) ("*In preferred embodiments* … the translational movement of the nut … is detected by means of a sensor."), 9:3-5 (cited in Ex. 2005, ¶ 84) ("*In practical use*,

[1] PO asserts, unhelpfully to its argument, that the POSITA would have spent those years focused specifically on NVH attenuation. POR 15.

a distance X of 0.5 mm is considered *optimal*."); Ex. 1022, 166:5-18 (Poertzgen doesn't give tolerances). PO's expert spends paragraphs discussing embodiments that indirectly measure clamping distance and how isolators would ruin them (Ex. 2005, ¶¶ 83-86) only to admit that this is optional in Poertzgen. *See* Ex. 2005, ¶ 87; Ex. 1007, 3:17-20 (sensor is optional), claims 1-6 (not requiring sensors); Ex. 1022, 168:3-18 (POSITA free to use "as much or as little" of Poertzgen's teachings as he wants).

More fundamentally, "hard-mounting" appears nowhere in Poertzgen, and it sets forth no quantification of tolerances.[2] Ex. 1022, 166:11-18. Indeed, with respect to certain elements, such as the timing of the clamping, Poertzgen is vague. Ex. 1007, 9:5-7 (referring to minimizing clamping time to be "within *about* 1 second."); Ex. 1021, ¶ 11.

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[2] PO also posits that an isolator would prevent the gear train from having a known reduction ratio. Ex. 2005, ¶ 85. This is nonsense. The rotation of the motor's driveshaft (x revolutions per second) is not changed by an isolator between the motor and the subframe. Nor is the number of teeth on the various gears, which is what determines the reduction ratio (e.g., x rotations of the driveshaft yield y rotations of the actuator output). Ex. 1021, ¶¶ 8-10.

In sum, it is true, as it is whenever a component is added to a system, that in adding isolators to Poertzgen, engineering tradeoffs (complexity, cost, weight, etc.) must be considered and a degree of design skill must be applied by the skilled artisan. *Facebook, Inc. v. Windy City Innovations, LLC*, 973 F.3d 1321, 1343 (Fed. Cir. 2020) ("the fact that it would take some creativity to carry out the combination does not defeat a finding of obviousness"); *Medichem, S.A. v. Rolabo, S.L.,* 437 F.3d 1157, 1165 (Fed. Cir. 2006). This, however, does not change the fact that the passive isolators being added to Poertzgen, as taught in Boucheret, are being applied exactly as was well-known (being placed between components to reduce the transmission of NVH) to achieve the expected result (a reduction of NVH).

2. Boucheret's teaching is not as narrow as PO argues

Boucheret discusses, in the context of a vehicle, damping an electric motor's vibrations by placing various isolators between the motor and the housing. PO argues this teaching is inapplicable to Poertzgen, because the two motors are allegedly so different.[3] POR 33. However, both are electric motors in vehicles. Boucheret's teaching of the concept of using an isolator is not limited to the exact

[3] The '415 patent claims cover any electric motors. Ex. 2005, ¶ 53 (motor control unrelated to this case); Ex. 1022, 108:10-110:13 (claims require no particular motor control, speed, size, strength, or reliability).

motor disclosed in Boucheret. *See, e.g., Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1076 (Fed. Cir. 2015) (reference must be considered for everything it teaches and is not limited to the particular invention it describes).

Moreover, PO's alleged differences are not supported. As it did with Poertzgen, PO takes far too cramped a view of Boucheret's teachings. PO argues that Boucheret's motor "runs for extended periods at constant speeds, and can accommodate loose tolerances." POR 33. There is no citation to Boucheret for this statement, and with good reason—Boucheret never requires the motor to operate at constant speed, or for short or long periods of time. Ex. 1022, 150:21-25. Nor does Boucheret indicate that tolerances do not matter. Ex. 1022, 158:20-159:21, 160:22-162:2. A particular application of Boucheret is for a fan unit for a car's AC/heater (Ex. 1010, 1:5-9, 3:3-7), although it is certainly not so limited. *Id.*, 4:44-45 ("The invention of course is not limited to the embodiment described above"), claims 1-15. Moreover, anyone who has a car knows that the AC fan motor does not operate only for extended periods or at only one speed. It is even more ludicrous to argue that a POSITA would think that tolerances don't matter for the motors and fans within the AC/heating system of a car. Ex. 1021, ¶¶ 4, 13-15.

PO appears to misunderstand the concept being taken from Boucheret (that placing a passive isolator between components can dampen the transmission of NVH

between those components caused by moving parts, like a motor). This is independent of whether, e.g., the motor operates at one speed or variable speeds.

And, PO's alleged differences do not teach away from the actual claims of the '415 patent. Again, the '415 patent doesn't teach how to select an isolator so as to avoid the pitfalls of tight tolerances, or how to optimize an isolator for short-burst, variable-speed motors. The claims don't require tight tolerances or any particular type of electric motor or even any particular degree of success in damping vibrations. Ex. 1022, 100:7-23, 108:10-110:13, 147:16-23, 153:2-157:23. The claims cover isolators that barely dampen at all (i.e., those that are practically useless) as well as those that are optimized to dampen nearly all vibration. *Axonics, Inc. v. Medtronic, Inc.*, 73 F.4th 950, 957-58 (Fed. Cir. 2023) ("The inquiry is not whether a relevant artisan would combine a first reference's features with a second reference's features to meet requirements of the first reference that are not requirements of the claims at issue.")

PO also posits that a POSITA would be unaware that the motor and gears in Poertzgen generate NVH to be dampened. POR 1, 30. This argument fails to give due credit to the POSITA. A POSITA knew that rotating parts, such as motors and gears, generate unwanted NVH. Pet. 43-44; Ex. 1022, 116:20-121:4; Ex. 1021, ¶ 18. Indeed, the background textbook discusses the various sources of NVH. Ex. 1014, pp. 187, 188, 197-98. The textbook notes, with respect to rotating parts, "even

when the best practices are followed there will always be some unwanted sources of vibration present." *Id.*, at 197-98; Ex. 1021, ¶¶ 16-17. Moreover, Boucheret teaches that electric motors generate NVH—the damping of which is the point of its isolators—and Poertzgen discusses the noise generated by its electric motor. Ex. 1010, 3:20-22; Ex. 1007, 3:6-8. It strains credulity to suggest that a POSITA would be unable to identify rotating motors or gears as sources of NVH to be dampened. Ex. 1021, ¶ 18.

3. There is nothing unusual about the location of the isolators recited in the claims.

When a motor generates NVH, that NVH can be transmitted between abutting components. It can be dampened by placing an isolator between the motor and the parts surrounding the motor (e.g., the motor and the sub-frame to which the motor is attached) and further along the pathway for NVH transmission (e.g., between the sub-frame and the housing or anything else the sub-frame abuts). Likewise, when gears are generating NVH, that NVH can be dampened by placing an isolator between the gears and the sub-frame to which they are mounted. These are the natural, expected places to locate isolators. Pet. 3, 35-37, 41, 43-44, 48-49. Petitioners are not relying merely on a "guess" (POR 31) that an isolator would be useful in a particular spot; they explained that it would be obvious to a POSITA to place an isolator anywhere along the path of transmission for NVH emanating from,

e.g., a rotating part like a motor or gears, including the locations recited in the claims.[4]

Placing multiple isolators is no less obvious than placing one isolator, given that each isolator is still being used exactly as intended to achieve the expected result of further dampening NVH. Pet. 39-40, 46-47; Ex. 1021 ¶ 19. Indeed, Boucheret applies multiple isolators, and teaches that smaller or larger numbers of isolators could be used. Ex. 1010, Fig. 3, 4:52-56; Ex. 1022, 120:24-121:4 (POSITA aware of using multiple isolators). In some applications, a designer may wish to have only one isolator. If they want a particularly quiet system, they may choose to use multiple isolators. But, in each instance, the use of the isolators is not inventive. Even the background textbook on NVH makes clear that, in the automotive context, no one isolator will dampen all vibration, and multiple isolators may be needed. Ex. 1014, 207-209.

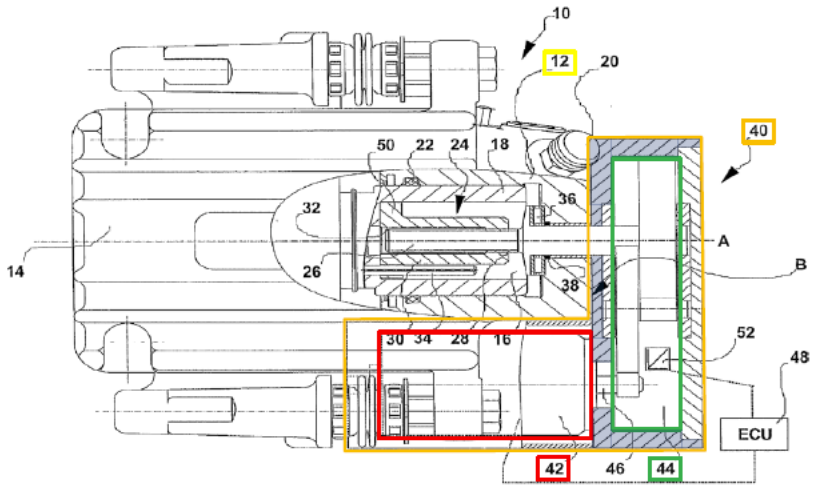
[4] PO argues that Boucheret's isolators are not at the axial ends of the motor, but the claims don't require isolators at the axial ends of the motor, and isolators at the axial ends of motors were known to the POSITA in any event. Ex. 1022, 168:25-173:14.

B. Poertzgen, Poertzgen-Drennan, and Poertzgen-Weiler all have "Sub-frames"

PO acknowledges the ordinary meaning of "sub-frame" is a "frame for a subassembly." POR 16; Ex. 1022, 74:23-75:15 ("sub-frame" is a "very generic" "placeholder" term). Under this definition, each proposed combination has a sub-frame, which is the frame upon which, e.g., a subassembly of the motor and gears are mounted. Pet. 7-8, 13-14, 21-22, 64. The '415 specification provides no justification for diverging from the ordinary meaning.

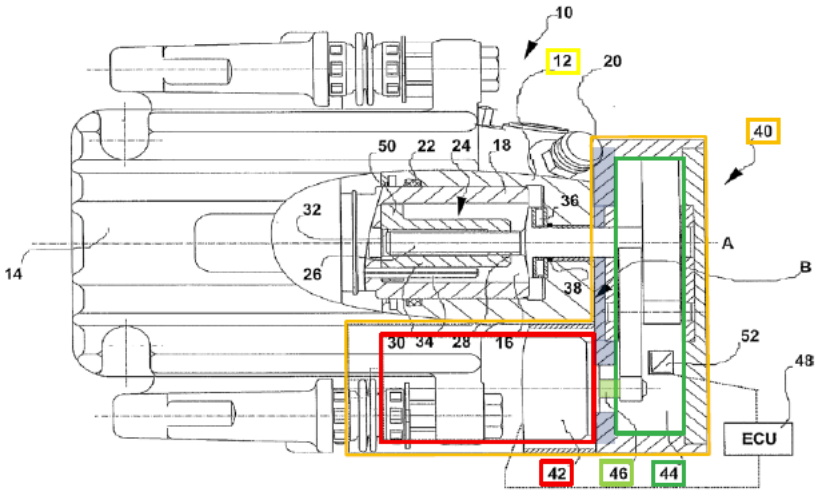
PO nonetheless points to certain embodiments and certain claims to argue that a sub-frame must also be "distinct from the actuator housing." POR 16-17. There is no clear disclaimer or definition in the patent to justify diverging from the ordinary meaning of sub-frame as PO argues. The patent instead indicates that its embodiments are not intended to limit the claims. Ex. 1001, 8:36-42. And, as PO admits, certain claims fail to recite an actuator housing, indicating an indifference as to whether the sub frame is "distinct" or not from an actuator housing. PO is simply inviting the Board to improperly read limitations into the claims. *Superguide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004). Indeed, the Board rejected a virtually identical argument with respect to the claim term "housing" in the Institution Decision, and should reject this argument, too. ID, 36-37.

In any event, as seen in the below images from the Petition, Poertzgen teaches a sub-frame (grey) that is distinct from (i.e., is not the same as) an actuator housing, e.g., the gold housing enclosing the motor:



Ex. 1007, Figure 1 (annotated).

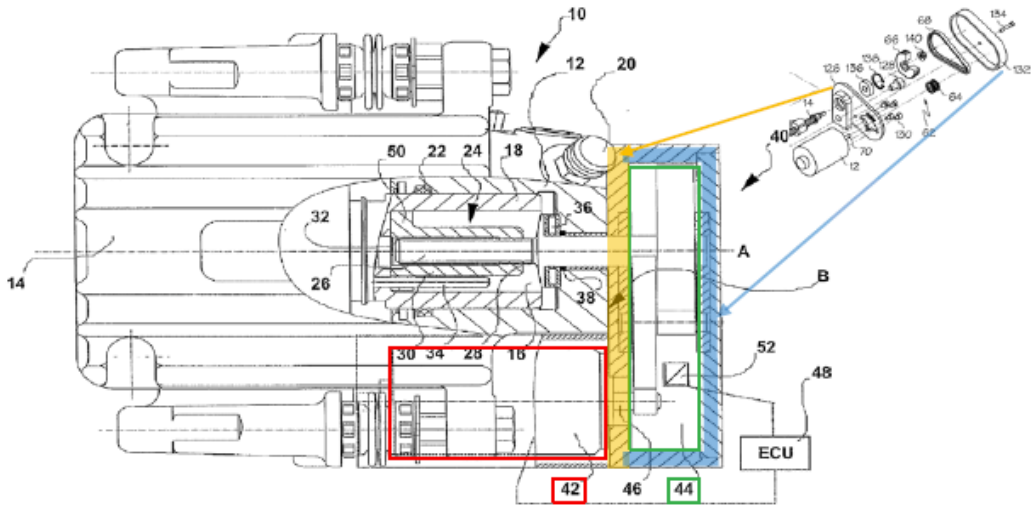
Pet. 24, 45.



Ex. 1007, Figure 1 (annotated)

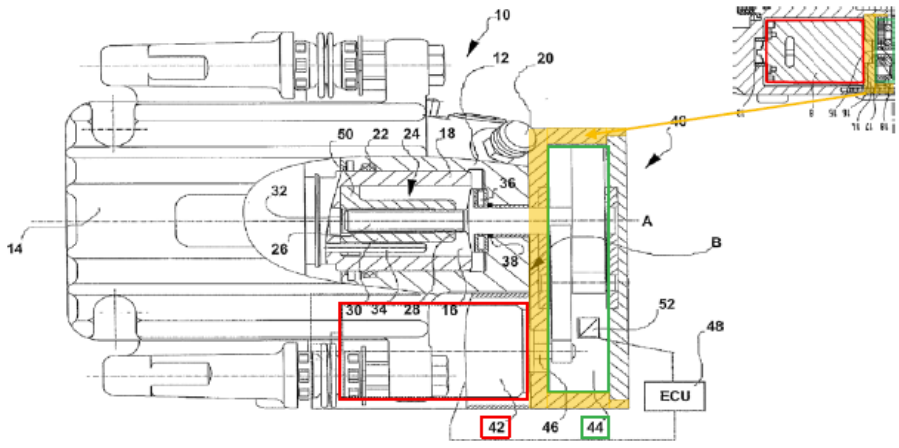
Pet. 25.

Likewise, Poertzgen-Drennen (below) has a sub-frame (yellow) distinct from the actuator housing (which includes an uncolored portion to the left of the subframe surrounding the motor and a covering to the right of the subframe shown in blue):



Ex. 1007, Figure 1 (annotated); Ex. 1011, Figure 2 (excerpt)

Pet. 57. Poertzgen-Weiler (below) also has a sub-frame (yellow), distinct from the actuator housing (surrounding the motor to the left of the subframe and having a lid to the right of the subframe):



Ex. 1007, Figure 1 (annotated); Ex. 1012, Figure 2 (rotated excerpt, annotated)

Pet. 66. In no instance is the subframe indistinct from or fully coextensive with the actuator housing.

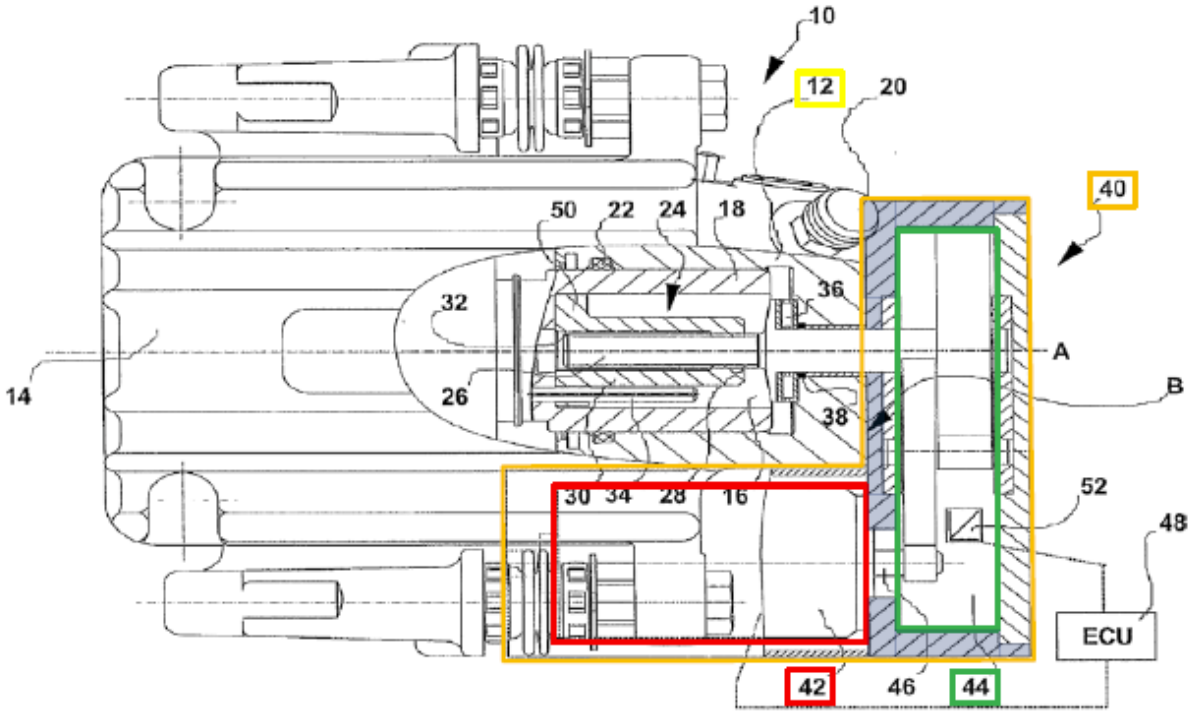
To the extent that PO is intending to construe sub-frame to exclude any structure that has a portion exposed to the exterior of the device, then it is improperly reading even more limitations into the claims. *See* Ex. 1022, 125:3-131:17 (sub-frame of Fig. 6 is "still a sub-frame" even if only partially covered with housings). Nothing in the language of the claims, specification, or prosecution history would preclude a sub-frame from having a portion that is exposed to the exterior of the device. Indeed, the specification indicates that both the actuator housing and/or the subframe can enclose the actuator components. Ex. 1001, 1:66-67, 7:20-23, 7:30-33 ("In an alternative embodiment, the sub-frame may include a housing that at least partially encloses or surrounds the motor as well as at least a portion of the gear train."). Likewise, nothing in the patent or claims requires that an "actuator housing," entirely separate from a sub-frame, be a structure that exclusively and entirely surrounds the actuator. *Id.*, claims 9, 12, 13, 18, 20, 22 (requiring housing to only partially enclose actuator); Ex. 1022, 133:1-6 (not sure if actuator housing must completely enclose actuator).

PO also discusses a functional ability to test the motor and gears while they are mounted to the sub frame prior to adding an actuator housing. POR 39, 48. This functionality is not part of PO's claim construction of "sub-frame" (POR 16-17),

rendering it irrelevant. *See* Ex. 2005, ¶¶ 49, 60; Ex. 1022, 75:21-82:22, 123:16-125:2 (appearing to improperly read various unclaimed functional benefits into the meaning of "sub-frame"). In any event, in the proposed combinations, the motor and gears are mounted to the sub-frame as a manipulable unit and could be independently tested before, for instance, adding the actuator housing for the motor on the left of the sub-frames or the actuator housing covering the gears located to the right of the sub-frames. Pet. 7-8, 13, 24, 64; Ex. 1007, Abstract, 2:24-30, 8:5-16, Ex. 1012, 6:10-7:2, 13:28-14:29.

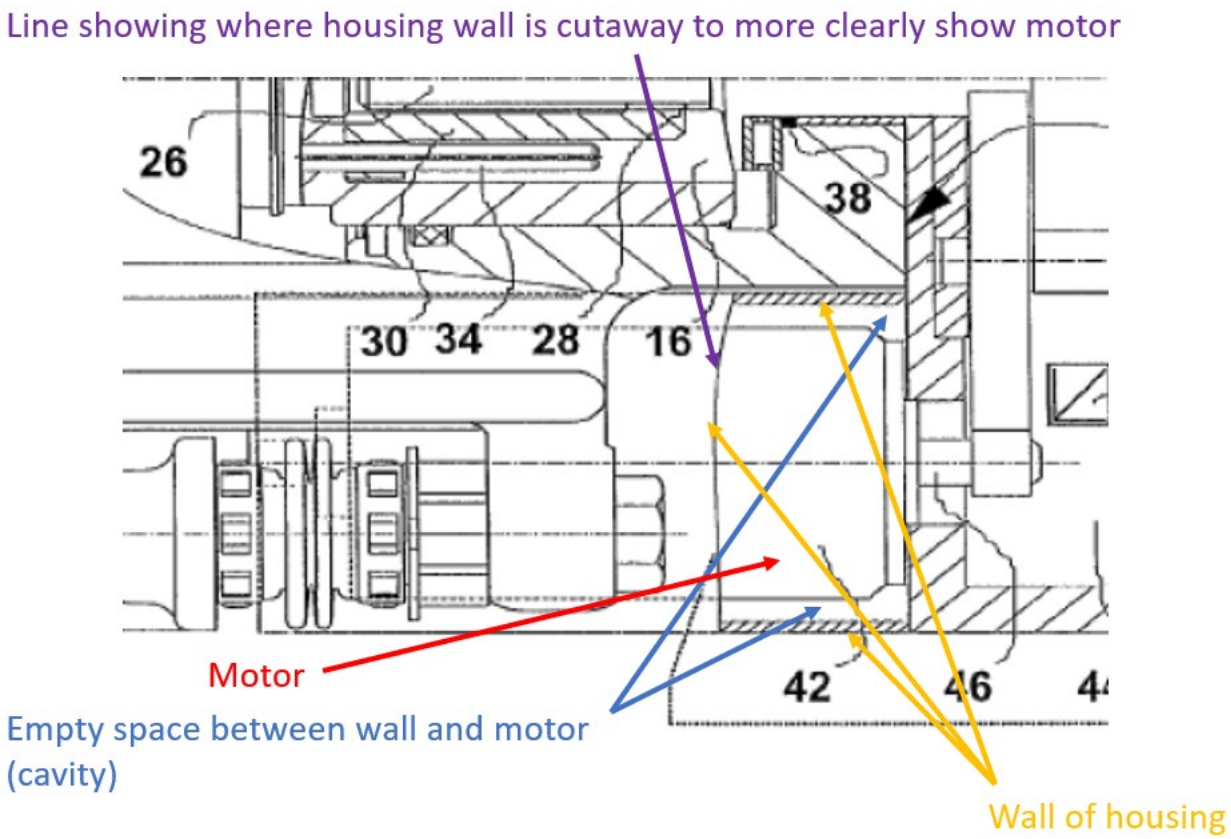
C. Poertzgen Teaches a Motor Isolation Cavity

Despite disclaiming claims 9, 13, and 20, which require a motor cavity, PO now argues that Poertzgen does not disclose a motor isolation cavity. But Poertzgen shows empty space in the cutaway between the motor (**red**) and the actuator housing (**yellow**),



Ex. 1007, Figure 1 (annotated)

Pet. 51. Seen closer (below), it is clear that there is empty space (**blue**) between the wall of the actuator housing (**yellow**) and the motor (**red**), and that the housing surrounds the motor, as shown by the fact that the housing wall is cutaway in the figure (cutaway line indicated with the **purple** arrow):



Ex. 1007, Fig. 1 (annotated); Ex. 1002, ¶¶ 126-28. PO suggests that Poertzgen does not "conclusively" teach a cavity because perhaps there is a strap for holding the motor (POR 46) or no housing at all around the motor (POR 47), but if that were the case, the cutaway line for the housing would not exist, because there would be nothing to cutaway. And, even if the figure could be construed as showing a strap, (otherwise unmentioned in Poertzgen) then Poertzgen would teach to a POSITA both a cavity and a strap.

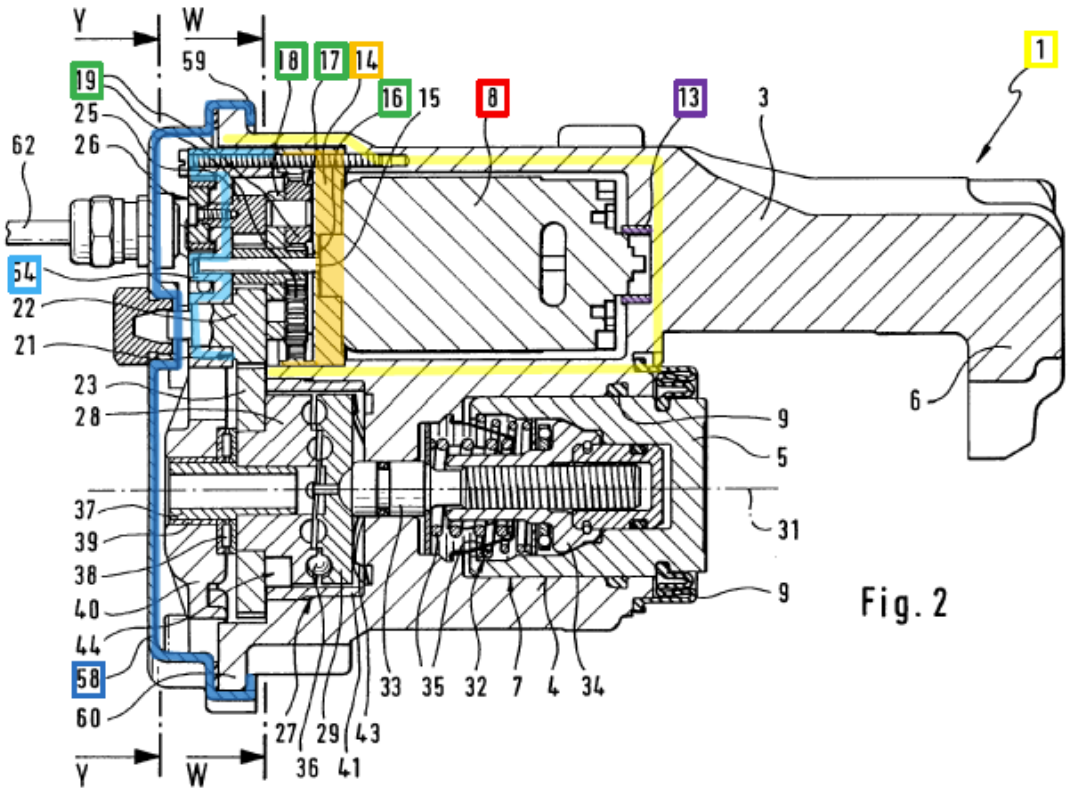
D. Weiler Teaches an Actuator Housing

PO proffers an ordinary meaning of "actuator housing" ("an outer casing of the actuator") that does not help it. Then, PO adds the requirement that the housing

also cannot be a portion of a brake caliper. So, according to PO, an outer casing of an actuator is an actuator housing, unless you add a caliper to it, in which case it ceases being an actuator housing. This argument has already been rejected by the Board as an attempt to improperly read limitations into the claims (ID, 36-37), and there is no reason for the Board to change its preliminary ruling. Claims 24 and 25 do not even mention a brake caliper, and certainly don't require that a caliper not be a part of the actuator housing. *See In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1369 (Fed. Cir. 2004) ("We have cautioned against reading limitations into a claim from the preferred embodiment described in the specification, even if it is the only embodiment described, absent clear disclaimer in the specification."). Indeed, in Figure 3, the motor (which would be on the bottom left side of the actuator) appears to be residing in a part of the brake caliper. Ex. 1001, Fig. 3.

E. Weiler Teaches an Isolation Bushing, and Adding Isolators would have been Obvious.

Despite having disclaimed claim 23, which recites an isolation bushing, PO now disputes that Weiler's bearing bush 13 (**purple**) is an isolation bushing as recited in claims 24 and 25 (POR 52-53):



Ex. 1012, Figure 2 (annotated)

Pet. 79. There is no dispute that the bushing in Weiler physically separates (isolates) the motor from the housing. PO argues that it nonetheless is not an isolation bushing, but offers no construction of, or criterion for, "isolation bushing" that would exclude the bushing of Weiler. *See* Ex. 1022, 87:5-88:3, 90:15-100:23 (PO's expert unable to identify any objective criteria in patent for classifying a bushing as an isolator, and admitting that all bushings have elasticity and viscoelasticity). Like the other claims, nothing in claims 24 or 25 requires any particular amount of isolation,

whether it be physical isolation or NVH damping.[5] Simply put, there is no basis for distinguishing the bushing of Weiler from the isolator of the claims.

As with Poertzgen, PO argues that adding isolators in Weiler would ruin its tolerances and cause catastrophic misalignment of parts. POR 51. PO improperly relies on optional features of Weiler, fails to address the full teaching of Weiler, and relies on the POSITA to shoddily design an isolator that wouldn't work, rather than try to build one that would. *See supra*, Section II.A.

PO argues that it would be inventive to use two isolators, each serving their expected purpose, because a POSITA would think that one was sufficient in Weiler. This is akin to arguing that a coat with three buttons is inventive over previous coats with two buttons, even though the additional button is serving its intended purpose and achieving only the expected result. The additional isolator (just like the additional button) is obvious because it acts exactly as expected. PO does not even argue that the second isolator achieves some unexpected result. *Cf. In re Huang*, 100 F.3d 135, 139 (Fed. Cir. 1996) (Even useful modifications may not be patentable

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[5] And even if there were, the Petition explains the obviousness of making such bushings out of, e.g., rubber or polymer. Pet. 79-80; *see also* Ex. 1022, 90:15-91:7 ("bushings in my experience could be made out of all sorts of different types of materials. … Bushings … can be made out of different kinds of plastic ….").

if within the capabilities of a POSITA, unless they produce an "unexpected result which is different in kind and not merely in degree.") In arguing that there is no need for multiple isolators, PO simply lodges an attack on the usefulness of the alleged invention itself.

The Petition explained that an isolator will dampen the transmission of NVH. When one wants more damping and less noise, for instance, then using multiple isolators would be obvious. Pet. 39-40, 46-47. The additional isolators are not truly redundant, in that they provide additional damping. Ex. 1021, ¶ 19.

F. Dr. Lequesne is a POSITA

PO gerrymanders a definition of POSITA, putatively to exclude Dr. Lequesne. This is a cynical exercise that fails to account for Dr. Lequesne's experience, or the actual subject matter of the '415 Patent, titled "Electro-Mechanical Actuator for an Electrically Actuated Parking Brake." A person having a degree in electrical engineering, coupled with at least two years of experience with electromechanical devices such as actuators, would be a POSITA in the subject matter of the '415 patent. PO's basis for arguing otherwise is that "this case relates primarily to noise attenuation and vibration damping for actuators." POR 14. However, most of the claims of the '415 patent neither recite isolators nor require attenuation or damping. Those that require isolators demand no particular amount of attenuation or damping. Ex. 1022, 115:12-116:12 (claims cover actuators as loud as lawnmowers); Ex. 1001,

1:34-37 ("In some applications, a loud system is desirable…"). PO's decision to disclaim most of its patent and hang its hopes for patentability on the presence of simple isolators in an actuator does not somehow change the field of the patent from electromechanical actuators, or the knowledge of the POSITA.

In any event, Dr. Lequesne has spent his 40-year career as a designer in the automotive industry, has worked on EPBA systems, and also has vast experience with electromechanical actuators and NVH. Ex. 1002, ¶¶ 7-9 (e.g., receiving IEEE's annual Nikola Tesla Award "For contributions to the design and analysis of actuators, sensors, and motors for automotive applications."); Ex. 2007, 10:6-17 (focus on electric machines and electromechanical energy conversion and controls), 11:21-16:3; 20:3-31:8 and Ex. 1023 (exhibit 4 to Ex. 2007). Thus, he at least has equivalent experience as, for instance, someone with a bachelor's degree in automotive engineering, which PO concedes would be a POSITA. *See* Ex. 1022, 104:6-108:9 (EE with real world experience can be a POSITA).

It is also worth noting that, to the extent PO is arguing for a POSITA with more experience focused on noise attenuation (despite the claims not requiring it), it is only hurting its case, which relies on the POSITA, *e.g.*, allegedly being unable to recognize that Poertzgen's motor causes NVH and being unable to implement a basic passive isolator therein.

G. PO's Alleged Evidence of Nonobviousness Lacks Nexus to the Claimed Invention

PO argues that there is evidence of copying, praise, and commercial success, but never links its evidence to the claimed invention. As such, these arguments are irrelevant. *Bosch Auto. Serv. Sols., LLC v. Matal*, 878 F.3d 1027, 1036-37 (Fed. Cir. 2017).

Regarding copying, PO posits that a presentation (Ex. 2012), with figures that do not mention isolators and that have *not* been proven to embody any claim of the '415 patent (see Ex. 2011, which is *not* by an expert and which does *not* apply the '415 patent claims to the presentation) was shown to an unnamed person (despite a lack of any firsthand evidence of what, if anything, was presented) at an unnamed TRW entity. PO then asserts that ZF's later sales of actuators that are accused of infringement must be the result of "copying." This argument fails because there is no nexus linking the '415 patent claims to the presentation, no evidence that whomever saw the presentation designed the accused products, and no analysis showing that the accused products copy the design from the presentation. Copying requires more. *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1246 (Fed. Cir. 2010).

As to industry praise, PO relies on Ex. 2010 and paragraph 165 of its expert's declaration. Ex. 2010 praises ZF as a pioneer but nowhere singles out any particular EPBA, much less any *claimed* features of EPBAs. Features that are discussed, like enhanced fuel economy, are unrelated to the '415 patent. There is no support for

PO's expert's statement that Ex. 2010 "constitutes praise for the invention of the '415 patent." Ex. 2005, ¶ 165.

As to commercial success, PO begins by admitting that it never sold an actuator embodying the '415 patent. POR 61. To the extent PO's indifference to its own "invention" speaks to obviousness, it does not help PO.

PO then argues that Petitioner sold 200 million units of infringing product. However, Ex. 2010 says no such thing. There is no indication of how many units of any particular product (accused vs. unaccused) were sold.[6]

Nor did PO show that the accused products (the sales of which are not particularly disclosed in Ex. 2010) actually infringe. *See* Ex. 2016 (failing to clearly show elements, such as the motor being mounted to a subframe). PO's expert blithely asserts, in one sentence: "I have reviewed the claim charts of Ex. 2016, which I understand includes photographs of two products sold by Petitioners … and I agree that the claim charts establish that there is a component in each of the photographed products that corresponds to each one of the claim elements." Ex. 2005, ¶ 163. This statement does not even say that the components are arranged or function as required by the claims, and is devoid of any supporting analysis. *See*

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[6] Petitioner relies on Ex. 2009, but there is no evidence that the actuator shown in Ex. 2009 meets the claims of the '415 patent, or how many were sold.

also Ex. 1022, 85:12-86:1; *Bosch*, 878 F.3d at 1037 (conclusory statements that a product is covered by the patent lack foundation and are insufficient to support an allegation of commercial success).

PO further states that the accused devices "are coextensive" with the claims. POR 62. PO cites to PO's expert, who simply states that "he understands" the devices are coextensive with the claims. Ex. 2005, ¶ 166. Neither offers any analysis to justify the conclusion. It appears that the expert heard it from the lawyers, who then cited the expert.

H. These Proceedings Are Constitutional and there is Jurisdiction

As set forth in the Institution Decision, the constitutionality of these proceedings has been established and IPRs may be instituted with respect to expired patents. *In re Palo Alto Networks, Inc.*, 44 F.4th 1369, 1377 (Fed. Cir. 2022); *Mobility Workx, LLC v. Unified Patents, LLC*, 15 F.4th 1146, 1153-57 (Fed. Cir. 2021); *Apple, Inc. v. Gesture Tech. Partners, LLC*, IPR2021-00922, 2022 WL 17254070, at *11-12 (PTAB Nov. 28, 2022).

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Dated: November 9, 2023

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CERTIFICATION UNDER 37 C.F.R. § 42.24(d)

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing Petitioner's Reply totals 5,471, which is less than the 5,600 allowed under 37 CFR § 42.24(c)(1), as counted by the Word Count feature of Microsoft Word.

Pursuant to 37 C.F.R. § 42.24(a)(1), this count does not include the table of contents, the table of authorities, appendix of exhibits, the certificate of service, or this certification of word count.

Dated: November 9, 2023

By: /John R. Hutchins/

John R. Hutchins
Reg. No. 43,686

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.105, I hereby certify that I caused a true and correct copy of this PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE UNDER 37 C.F.R. § 42.23 in connection with IPR2023-00273 to be served via e-mail on November 9, 2023, in its entirety on the following counsel of record for Patent Owner:

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Dated: November 9, 2023 By: /Carlos Goldie/

Carlos Goldie