

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Kubota North America Corporation,

Petitioner

v.

Vermeer Manufacturing Company,

Patent Owner

IPR2025-00167 (U.S. Patent No. 9,321,386)

PETITIONER'S REPLY

TABLE OF CONTENTS

I.	SUMMARY OF CENTRAL ARGUMENTS	2
A.	PO’s bodily incorporation and teaching away arguments are neither legally correct nor factually supported.....	2
1.	The POR improperly relies on bodily incorporation	3
2.	Design changes do not support teaching away	4
B.	There is no genuine dispute that Petitioner’s expert Dr. Velinsky, PE is fully qualified.	6
II.	CLAIM CONSTRUCTION OF “MAINFRAME”.....	7
A.	A “mainframe” can be made of separable components.	8
B.	KR996’s CUL mainframe includes fixture 41 of its loader unit...10	
III.	GROUND 1—KR996+JP705.....	13
A.	Petition supports combining JP705’s engine bracket.....	13
B.	PO arguments on linkage/actuator connections rely on an incorrect construction of “mainframe”.....	14
C.	Mainframe incorporating a single weldment is obvious.....	16
IV.	GROUND II—KR996+JP705+MCILWRAITH.....	18
V.	GROUND III—KR996+JP705+BELTRAMI	19
A.	Petition shows an obvious benefit of providing low pivot point connections.....	19
B.	PO’s teaching away argument is legally flawed.	22
C.	PO’s reasonable expectation argument relies on improper bodily incorporation.....	24
VI.	SECONDARY CONSIDERATIONS OF NON-OBVIOUSNESS.....	26
VII.	PO’S INFLAMMATORY RHETORIC ATTACKING DR. VELINSKY IS CONTRARY TO THE ACTUAL RECORD.....	29
VIII.	CONCLUSION	30
	CERTIFICATE OF WORD COUNT	31

Vermeer (“PO”) touts that they have invented and patented a vertical-lift compact utility loader (CUL) and devotes large portions of their Response (“POR”) to discussing long-felt need, commercial success, and industry praise for its commercial vertical-lift CULs relative to conventional radial-lift CULs. However, it is undisputed that PO was not the first to invent a vertical-lift CUL—KR996 is a prior art patent that clearly illustrates and describes just such a CUL. Faced with KR996, PO now contends its claims are patentable because they include one or more commonplace features—such as engine brackets, low pivot points for the linkages, or a mainframe that includes welds—that KR996 does not expressly describe. Yet, as demonstrated in the Petition, each of these features was well known in the art and represents an obvious design choice that would bring predictable benefits to KR996’s CUL.

I. SUMMARY OF CENTRAL ARGUMENTS

A. PO’s bodily incorporation and teaching away arguments are neither legally correct nor factually supported.

Rather than consider how POSITA would approach the Petition’s prior art combinations, PO and their expert, Dr. Fleming, rigidly assume every component illustrated in the prior art figures must remain exactly as depicted in that patent’s

not-to-scale figures. EX1043, 83-84 (Fleming describing “sketch[ing] over” patent images to create an “overlay[]” being done by “one of my engineers”). PO argues these constructed drawings show the obviousness combinations do not work due to alleged component interference meaning there is teaching away or defeat of the KR996’s intended purpose. This is not the proper context for an obviousness analysis.

The facts here are very similar to those adjudicated in *Allied Erecting & Dismantling Co. v. Genesis Attachments, LLC*, 825 F.3d 1373 (Fed. Cir. 2016). *Allied* is an appeal of an IPR decision involving construction equipment that rejected similar arguments of bodily incorporation and teaching away by that patent owner.

1. The POR improperly relies on bodily incorporation

It is well established that “[t]he test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference[.]” *Allied*, 1381 (quoting *In re Keller*, 642 F.2d 413, 425 (C.C.P.A. 1981)). Yet this is exactly what PO and Fleming did in assuming every prior art component must remain precisely positioned and sized as depicted in the not-to-scale patent

figures,¹ without contemplating any modifications or adjustments including routine engineering. If any item, such as a motor or wheel, was in the way, Fleming determined that the combination did not work. Fleming admitted he approached the combinations by employing bodily incorporation. EX1043, 97-98.²

2. Design changes do not support teaching away

In addition to arguing that the bodily incorporations did not work, PO repeatedly argues that the primary reference, KR996, either teaches away from the combination, or that the combination destroys KR996's intended purpose. These very same arguments were addressed by the CAFC in *Allied*. There, the patent owner also argued that combining the references "would fundamentally redesign and reconstruct [the primary reference] to change its principle of operation and [thus]

¹ Patent figures may not be used to show particular sizes if the specification is completely silent on the issue, as the references are here. *See Hockerson-Halberstadt v. Avia Group Int'l*, 222 F.3d 951, 956-957 (Fed. Cir. 2000).

² When asked about "bodily incorporation" ("taking the exact figure as it is from Bares to the exact figure as it is in KR996 and see if they work"), Fleming confirmed "Yeah, from a high level I would say that's how we ended up scaling those, was [taking] the track from Bares and overlaying there [KR996]."

result in an inoperable device.” *Id.*, 1380. The CAFC disagreed. *Id.* The Court faulted the patent owner’s reasoning because the test is whether a skilled artisan would have been motivated to combine their teachings to achieve the claimed invention. *Id.* (citing *Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1361 (Fed. Cir. 2007)). The Court stated that “[a]lthough modification of the movable blades may impede the quick change functionality disclosed by Caterpillar [the primary prior art reference], ‘[a] given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine.’” *Id.* (citing *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006)).

Like *Allied*, PO erroneously relies on bodily incorporation and teaches away to underpin its arguments. POR, 43-44, 51-53, 60-62. And the same conclusion follows—PO’s arguments are legally unsound, and the Board should reject them. Further, even if a secondary reference could not be bodily incorporated into a primary reference, this still does not mean the primary reference teaches away. *Centripetal Networks, LLC v. Palo Alto Networks, Inc.*, No. 2023-1785, 2024 WL 4635578, at *6 (Fed. Cir. Oct. 31, 2024) (agreeing with the Board that the inability to bodily incorporate references did not constitute teaching away).

B. There is no genuine dispute that Petitioner's expert Dr. Velinsky, PE is fully qualified.

PO spends an inordinate amount of time attacking and denigrating the technical capabilities of Petitioner's expert, Dr. Velinsky. But there is no serious dispute that Velinsky is fully qualified for this role. In short, Velinsky has a PhD in mechanical engineering and was a professor of mechanical engineering at UC Davis, where among other things, his area of expertise was vehicle design and mechanics, along with machinery. EX1003, ¶¶9-14; EX1036. He also served as the Director of the Advanced Highway Maintenance & Construction Technology Research Center ("Research Center") from 1991-2016. *Id.* (priority date of the '386 patent is 2015). While at the Research Center, Velinsky worked on the design and fabrication of highway maintenance and construction machines developed to address a "wide variety of highway tasks including...collection of roadway debris, landscape maintenance, graffiti removal and plowing of snow, and involve the use of mechanisms to allow the tasks to be performed." *Id.*

PO admits skid steers with vertical-lift were well-known prior to their patent but argues that providing vertical-lift to a *compact* utility loader (CUL) or *mini* skid steer was new and non-obvious. POR, 10. While Petitioner disputes that POSITA would need to have specialized first-hand expertise in CUL—other than the analysis and design of mechanical systems, which is also an area of expertise of Velinsky—

Velinsky also has personally designed CULs at the Research Center and is qualified to opine on them, even under PO's arbitrary standard. EX2021, 10.

Indeed, it is PO's expert, Dr. Fleming, who has never designed a CUL and had no experience with CULs prior to the '386 patent priority date. EX1043, 24-25 (indicating work on "full-size skid steer with cab" and first CUL experience with prior litigation in 2020). So Velinsky is the only true expert of CULs—according to PO's own unsupported requirements—at the priority date of the patent.

II. CLAIM CONSTRUCTION OF "MAINFRAME"

The term "mainframe" has been thoroughly briefed, and its plain and ordinary meaning is understood to be a "primary supporting structure." Paper 16 ("ID"), 34. In so doing, the Board rejected PO's proposed construction that "the 'mainframe' must be 'always present and not selectively removeable.'" ID, 20, citing PO's Paper 12, 1. The Board also determined that "when KR996's loader is attached to the compact tool carrier, fixture 41 is part of the mainframe or primary supporting structure of the compact tool carrier." ID, 34. Despite this, PO attempts to recycle their rejected construction by arguing that items not always present and selectively removable are so-called "secondary" structures (an artificial description not found

in the '386 patent or the relevant art) excluded from a “mainframe.”³ The plain and ordinary meaning of a *primary supporting structure* carves out no such exclusion.

A. A “mainframe” can be made of separable components.

The term *mainframe*⁴ (or “main frame”) is used often in the prior art. PO identifies two prior art patents with a single, un-separable, component labeled as “main frame” or “main frame assembly.” *See* EX2017, EX2018. However, other prior art patents use the term to describe multi-component assemblies, with many of such components being readily separable or removable.⁵ For example, a 2005

³ “Both [PO] and Petitioner agree that the mainframe need not have a unitary construction or lack of separability.” ID, 34.

⁴ *See, e.g.*, claim element [1.2a]. Claim terms in this paper are in bold-italics.

⁵ EX1047, 5:50-55 (“main frame 24” including uprights 56, boom assembly 32, and various other “structural elements”), FIG. 2; EX1048, FIG. 1, 1:23-25, 13:24-45 (“main frame 205” for “compact track loader” including plate members 213/216 “attached and fixed by bolts”); EX1049 (“main frame assembly 10 [] modularly assembled” by “connect[ing]” assemblies “at the same or a different location”); EX1050, (“loader main frame” that includes, *inter alia*, “transmission case 70.”), FIG. 3); EX1006, FIG 1 (attachment members of main frame 1).

service manual for a Bobcat skid steer identifies a “MAIN FRAME” including many components such as an instrument panel, a fuel tank, a hood, and a lift arm, all of which are identified as removable.

This example manual illustrates “main frame” to include separately removable components

		MAIN FRAME
BOB-TACH	50-10-1	
Installation	50-10-2	
Lever And Wedge Removal	50-10-3	
Removal	50-10-1	
Seal Removal And Installation	50-10-3	
BOTTOM ACCESS PANEL	50-90-1	
Removal and Installation	50-90-1	
INSTRUMENT PANEL	50-50-1	
Removal and Installation	50-50-1	
FUEL TANK	50-40-1	
Removal And Installation	50-40-1	
GRAB BAR	50-60-1	
Removal and Installation	50-60-1	
HOOD	50-70-1	
Disassembly And Assembly	50-70-1	
Hood Latch Removal	50-70-2	
Removal and Installation	50-70-1	
LIFT ARM	50-20-1	
Removal And Installation	50-20-1	
REVERSE STOP PANEL	50-80-1	
Description	50-80-1	
Inspecting Function	50-80-1	
Removal And Installation	50-80-1	
Reverse Stop Mechanism Removal And Installation	50-80-2	
RIDE-ON PLATFORM	50-100-1	
Caster Removal and Installation	50-100-2	
Removal and Installation	50-100-1	
Tire Removal and Installation	50-100-1	
TAILGATE	50-30-1	
Rear Door Panel Removal And Installation	50-30-1	
Removal And Installation	50-30-1	
Tailgate Bumper Adjustment	50-30-3	
Tailgate Striker Adjustment	50-30-2	
Tailgate Striker Removal And Installation	50-30-2	
TIGHTEN ALL HARDWARE PER SIZE TO GRADE 5 TORQUE (See TORQUE SPECIFICATIONS FOR BOLTS on Page SPEC-30-1.) UNLESS OTHERWISE SPECIFIED.		
217 of 388	50-01	MT52 Bobcat Mini Track Loader Service Manual

Dealer Copy – Not for Resale

EX1051, 217. All of this is consistent with the phrase “primary supporting structure”, which does not require the absence of selectively removeable components, but rather that the structure be “of first rank, importance, or value.” EX1052, 4 (definition of “primary”).

B. KR996's CUL mainframe includes fixture 41 of its loader unit.

Here the machine at issue is KR996's *compact tool carrier* (or CUL), which includes vehicle 10 **and** loader unit 40.⁶ Both vehicle 10 and loader unit 40 include frame portions, the vehicle has body 11 and the loader unit has fixture 41, that are the primary supporting structure of the entire machine and are *for supporting the loader*. See element [1.2a]. Thus, the *mainframe*—the primary supporting structure—of the KR996 CUL is the combination of body 11 and fixture 41. See, e.g., EX1005, FIG. 9. Velinsky confirms that both body 11 and fixture 41 are critical and important to providing a primary support structure for the CUL. EX1042, ¶2. Fleming also agrees.⁷

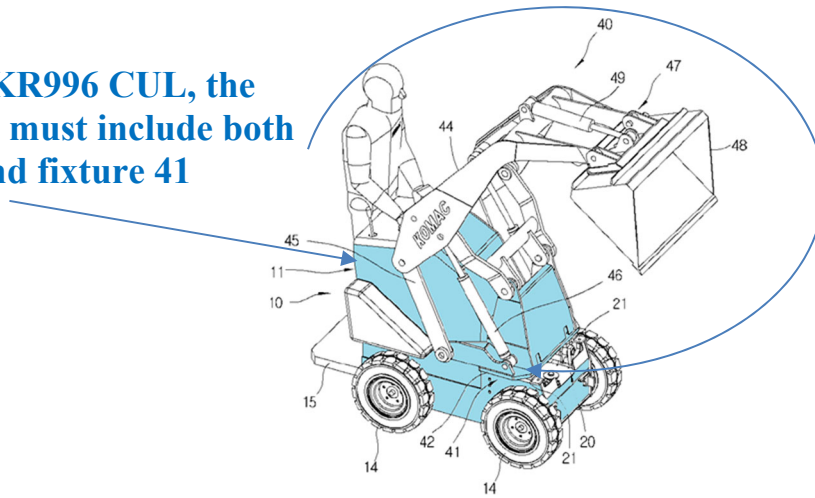
⁶ Each claim recites the *mainframe* is *for supporting the loader*, which includes loader arm(s). The appropriate starting point is always with the language of the asserted claim itself. See *Comark Commc'ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1186 (Fed. Cir. 1998). “[T]he context of the surrounding words of the claim also must be considered in determining the ordinary and customary meaning of those terms.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (citation omitted).

⁷ EX1043, 105-106 (Fleming describing the “attach[ed] loader frame...to the main body...configured for operation as a loader, then you would be having loads going

PO incorrectly argues that only body 11 is the primary support structure. But body 11 would be the primary support structure for KR996's vehicle 10 operating alone, not as a loader. In contrast, KR996's loader includes both vehicle 10 and loader unit 40, and the primary support structure for it would include body 11 and fixture 41, necessary to support the loader arm. Therefore, the primary supporting structure of KR996's CUL (not the vehicle 10 alone) is the combination that includes at least body 11 and fixture 41. *See* Petition, 30-32; EX1003, ¶74 (mainframe includes "body 11...as well as other portions" of KR996 "that support the loader," which "when in operation the mainframe of the vehicle is in one piece providing support for the loader;" and annotating EX1005, Figs. 9, 10); EX2021, 69-70 (agreeing Board's construction does not change opinion).

through that fixture and through that combination plate down...[the fixture is] one of many components that are critical")

**For the KR996 CUL, the
mainframe must include both
body 11 and fixture 41**



EX1042, KR996's CUL.

Also, KR996's loader is provided when vehicle 10 is joined or assembled with loader unit 40. That assembly can happen by an operator near a job site does not negate the fact that when assembled, vehicle body 11 and loader unit fixture 41 together form the primary supporting structure of the loader. Further, PO argues that the meaning of primary support structure excludes "any supporting structure that is selectively removable during various operations of the machine." POR, 30. The loader unit 40 including the fixture 41 is not removable during the loader operations of the machine.

Thus, the Board's ID construction of "primary supporting structure" is correct and includes the combination of at least body 11 and fixture 41 which supports the loader of KR996 by attachment of its linkages/actuator.

III. GROUND 1—KR996+JP705

A. Petition supports combining JP705's engine bracket.

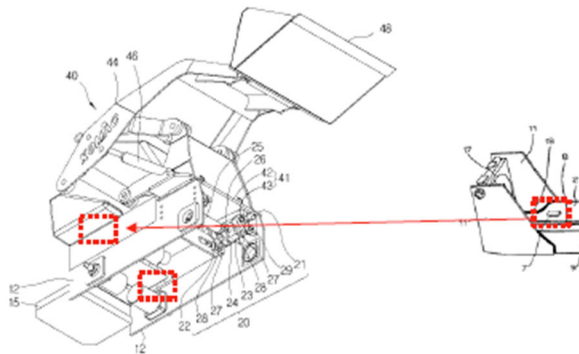
The Petition acknowledges that, while KR996 discloses an engine, it does not specify how the engine is secured within its vehicle. Petition shows that JP705's *engine bracket*⁸—a welded bracket extending from a side of a mainframe—in KR996's mainframe secures KR996's engine providing engineering advantages such as:

- reducing fasteners,
- providing a smooth surface,
- allowing the engine to serve as structural support,
- efficiently balancing a load,
- increasing the stiffness of the connection, and
- efficient loading of an engine.

Paper 3, 25-26, 33-34; EX1003, ¶¶57-60. *See also*, EX1043, 52-54 (Fleming describing engine bracket as a known way to attach the engine and “need[ing] some kind of resistance to the engine torque...that's [] basic engineering”).

⁸ *See, e.g.*, claim element [1.2b].

PO does not refute Petitioner's reasons to combine but instead focuses on alleged incompatibilities stemming from JP705's mainframe size and JP705's engine position. *See* POR, 38-39. But the Petition shows incorporating JP705's *engine bracket* (not its mainframe or engine location) in KR996's existing mainframe and engine location—where the bracket performs the exact same function in the exact same way.⁹



EX1005, Fig. 10, EX1006, FIG. 1 (portion)
(annotated)

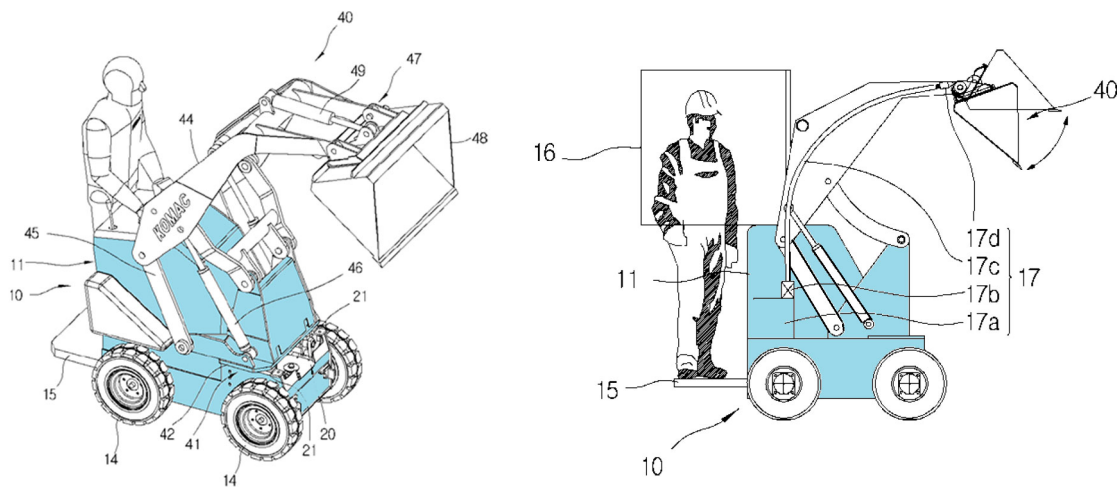
Petition, 35. PO's demand for bodily incorporation is misplaced. *See supra* I.A.

B. PO arguments on linkage/actuator connections rely on an incorrect construction of “mainframe”.

The Petition established that when KR996's machine is configured as a loader, it has linkage/actuator pivot point connections to a *mainframe* just as

⁹ PO relies on “mainframe” of large skid steers. *See* EX2017, EX2018.

claimed in the '386 patent. *See, e.g.*, Petition, 36-39. The Board agreed. *See* ID, 34. That KR996 vehicle (10) could be used to operate in other modes, including where it is not a CUL and/or lacks a loader arm, does not change the disclosure of KR996's CUL (*e.g.*, FIGS. 9, 21).¹⁰ KR996's loader mainframe—which includes components of body (11) and fixture (41) of loader unit (40)—is a primary supporting structure of the CUL and the linkage/actuator are pivotably attached thereto. EX1042, ¶¶2-4.



Id.

¹⁰ PO counsel's demand for Velinsky to identify mainframe components in the context of KR996's FIG. 1 is irrelevant as loader unit (40) is separate from vehicle (10), which is thus not configured as a loader. *Contrast*, EX1005, FIG. 9.

C. Mainframe incorporating a single weldment is obvious.

Certain claims recite that *the mainframe incorporates a single weldment*. See, e.g., claim 2. The Petition shows JP705's engine bracket is attached by welding; thus, applied to KR996's frame provides "its mainframe *incorporates a single weldment*." Petition, 42.¹¹ Fleming also recognized that it is "most likely" body 11 and fixture 41 are each "mostly, if not all, welded" together. EX1043, 113-114. Thus, it is uncontested that it would have been obvious for the KR996 mainframe to include a single weldment.¹²

This is also consistent with the use of "incorporates" in other patent claims in the art. See EX1054, 22:45-49 (claiming "the casing incorporates the hydraulic pump and motor"); EX1055, 26:33-40 (claiming a "the first transaxle incorporates a first hydraulic motor"). Further still, this is consistent with how PO has presented

¹¹ The Petition also states that it would have been obvious "to form other portions of the mainframe of KR996 as a part of a single weldment." *Id.*, emphasis added.

¹² The term "incorporate" means "take in or contain (something) as part of a whole; include". EX1053, 4 (emphasis added). Thus, the claims do not preclude the mainframe from having some portions formed as a single weldment, and other portions fastened in other manners.

similar limitations in the patent family. For example, USP 12,098,063 claim 3, which is one of the patents in the family and the subject of related PGR2025-00016, recites:

- “wherein the mainframe **is** a single weldment”¹³

contrasted with the present claims:

- “wherein the mainframe **incorporates** a single weldment.”

The terms have different meanings. *See PPC Broadband, Inc. v Corning Optical Communications*, 815 F.3d 747, 52-53 (Fed. Cir. 2016)(“There is a canon of construction: ‘the general assumption is that different terms have different meanings’ [and] a different scope.” Citations omitted.)

The POR appears to argue for the claim to be construed to require the mainframe **consists** (in its entirety) of a single, unitary welded piece. POR, 43. Even if this claim required the entire mainframe to be welded together, the Petition already addressed this alternative claim construction as an obvious design choice. Petition, 43 (“[t]o the extent [PO] argues certain components of the mainframe are required to be coupled” including “implementing a unitary frame,” it would have been obvious to form a mainframe consisting of one single weldment, including because

¹³ Petitioner did not challenge this claim in PGR2025-00016.

JP705 discloses as much.) *See also*, EX1043, 116-117 (Fleming discussing modifying design that “could do some kind of permanent attachment”). KR996’s CUL operates in its loader function if the loader unit fixture is attached by welding. Certainly, trade-offs exist between fasteners and welding, including ease of separability and reduction of parts. Petition, 42; EX1003, ¶¶60, 106; EX1042, ¶5 (discussing advantages of dedicated loader); EX1043, 103-104 (“Is there ever a job situation where it would be advantageous just to have a loader? A. There would be.”) Further, KR996 does not clearly discourage using a dedicated loader but instead notes that being able to switch between a loader and excavator provides “operational efficiency.” EX1005, [0007]. *See Medichem, S.A.* (“a given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine.”); *see also, PAR Pharm., Inc. v. TWI Pharms., Inc.*, 773 F.3d 1186, 1197–98 (Fed. Cir. 2014) (“Our precedent, however, does not require that the motivation be the best option, only that it be a suitable option from which the prior art did not teach away”). Thus, even if the claims require a mainframe of a single unitary weldment—which they do not—they would have been an obvious configuration with predictable trade-offs.

IV. GROUND II—KR996+JP705+MCILWRAITH

PO raises no additional arguments for this Ground.

V. GROUND III—KR996+JP705+BELTRAMI

A. Petition shows an obvious benefit of providing low pivot point connections.

There is no genuine dispute that both Beltrami and KR996, like the '386 patent, disclose vertical-lift loaders utilizing a four-bar mechanism—*e.g.*, elements 15.2b, 15.2c, 15.2d. There is also no genuine dispute that Beltrami teaches having *pivot points* for the four-bar mechanism low on the *mainframe*.¹⁴ And there is also no dispute that positioning the pivot points relatively low on the mainframe:

- reduces frame requirements and
- lowers the center of gravity (“COG”) of the machine,

both of which were well-known design benefits for a utility loader of any size. These and additional benefits of a reduced frame and low COG were well-recognized by

¹⁴ Various claims in this Ground recite positions of the pivot points, such as *the pivot point at which the linkage is attached to the mainframe being separated by a vertical distance D2* from rotational axis R (*e.g.*, element [15.5b]). While the Petition discusses these positions in detail for each claim, the POR characterizes these claim elements generally as “the pivot points ... are positioned relatively low on the mainframe[.]” POR, 11.

POSITA prior to the '386 patent and are detailed in the Petition and by Velinsky (including with supporting evidence). *See* Petition, 77-78 citing EX1003, EX1012, EX1011, EX1009, EX1006. PO's own expert, Fleming, agrees that the benefits of placing these pivot points low—including reduction of frame and lower COG—are “fundamental principles.” EX1043, 61-63, 77-80 (explaining “the higher [COG], the more front-to-back movement” impacting stability and “lower the pivot point down where you are supporting it on the lower mainframe structure, then...the mass of the mainframe [is] reduced.”) Thus, the Petition fully satisfies a *prima facie* finding of obviousness for these claim limitations.

PO's arguments about Beltrami are both inconsequential and factually incorrect. As best understood, PO's dispute seems to arise from their supposition that Beltrami—within the four-corners of its disclosure—explicitly recognizes benefits to low pivot points only in the context of improvements from radial-lift to vertical-lift and/or only recognizes an improvement of COG in terms of shifts in a fore-aft plane rather than the vertical plane. POR, 46-50. However, the law is clear that a prior art reference is not limited to any specific problem it addresses; its teachings are available for all they fairly disclose to POSITA. *In re Kahn*, 441 F.3d 977, 987 (Fed. Cir. 2006) (motivation question arises in the context of the general problem confronting the inventor rather than the specific problem solved by the invention); *Cross Med. Prods., Inc. v. Medtronic Sofamor Danek, Inc.*, 424 F.3d

1293, 1323 (Fed. Cir. 2005) (“One of ordinary skill in the art need not see the identical problem addressed in a prior art reference to be motivated to apply its teachings.”)

Beltrami recognizes benefits of moving from radial-lift to vertical-lift—the exact improvement alleged by the '386 patent many decades later. However, Beltrami's teachings are not limited only to replacing a radial-lift with vertical-lift. Beltrami states “the **pivot points 24, 26 and 30** [those connecting linkages/actuator of the vertical-lift and frame] **can be kept in such a low position on the vehicle that no supporting frame is needed.**” EX1008, 3:35-38; Petition, 75. This is not constrained to a “supporting frame” only of a radial-lift; Beltrami does not even illustrate any radial-lift accommodating frame. *See* EX1008, FIG. 1. It is not debatable that providing the pivot points low such that upper frame requirements are reduced lowers COG.

Further, PO's suggestion that Beltrami is limited to improvements of fore-and-aft COG shifts is misplaced as COG is a multi-directional, fundamental design parameter. EX1043, 64 (discussing in design COG was “one of the things that we would want to evaluate...you'd want to keep [COG] at a lower level in order to increase stability”), 74-78 (discussing front-to-back and vertical COG as “fundamental principles”). Providing the pivot points low and decreasing the frame

requirements as explicitly stated in Beltrami results in reduced COG in the vertical plane according to fundamental principles of physics. *See id*; EX1003, 163-164 (discussing “basic engineering principles, i.e., attaching the loader low...lowers the center of mass...and reduces mainframe structural needs...the lower the center of mass, the more stable”). These fundamental principles apply whether in the context of radial-lift or vertical-lift, large skid steers or mini skid steers. The Petition set forth a proper obviousness analysis and PO’s arguments do not refute that—“Beltrami is merely applying a known technique to a known device (*e.g.*, Beltrami’s technique of providing low pivot points in a vehicle using intermediate parts for connecting a loader arm, with KR996’s using pivotally attached connection between the loader arm and intermediate parts) ready for improvement (*e.g.*, decreasing the frame requirements and/or lowering the COG) to yield predictable results.” Petition, 67-68.

B. PO’s teaching away argument is legally flawed.

PO contends that there is a component in KR996’s patent figures that is in the way of the proposed lower pivot point, and therefore, the existence of this component effectively “teaches away” from the proposed modification. POR, 50-52. Although KR996 does not say what each of these components are, Fleming presumes that there is a “wheel motor” and components of a hydraulic actuated mounting mechanism

that cannot be moved, resized, or otherwise redesigned. *See* POR, 51. As discussed above in Section I.A and detailed in *Allied*, the entire premise of this argument is legally flawed. And PO's argument improperly relies on patent drawings that are not to scale, improperly requires bodily incorporation, approaches the modification as an automaton without any engineering considerations, and fails to recognize even if the combination required design changes—this does not support teaching away.

Interestingly, this is not the first time Fleming has submitted a declaration on the ability to move pivot points in a mini skid steer loader. In an earlier PGR where Fleming was representing Vermeer as a petitioner, he was quick to opine about POSITA's ability to change pivot point placement in that loader as being routine in the design process. EX1046, 58-59 (Fleming declaration showing various modifications were within the skill of POSITA including changing pivot point placement, linkage/actuator lengths, arm shape, and so forth).

Even if the drive motor is an interfering component as alleged, there are a myriad of options that can affect and address those space constraints, including moving the drive motor or providing it in various shapes and sizes. *See* EX1043, 41, 44, (discussing a rear-wheel powered assembly, varying drive motor size/shape). When discussing whether the '386 patent, which shows a track drive assembly, Fleming was quick to point out that the patent could readily be modified to support

a wheeled assembly, and that POSITA could move the drive motor or connect a raised rear motor with wheels. EX1043, 38-42 (describing “routine...something that could be done” by POSITA, “drive with chains going to the front and rear wheels”). As yet another example, a tracked assembly uses *no drive motor* at the front wheels where the interference is alleged. *See* EX1010, FIG. 3 (drive motor 16B).

Moreover, as described in the Petition, POSITA would have known to address any space constraints and operator safety. Petition, 78, 82; EX1003, ¶¶194, 215 (discussing design for no interference including linkages modified in shape, jog (or bend) of linkages into/out of plane, and accommodating the operator area, **safety fences** or barriers, and the like).

C. PO’s reasonable expectation argument relies on improper bodily incorporation.

Velinsky provided kinematic diagrams illustrating a four-bar mechanism where the pivot points are horizontally aligned as shown in the prior art. Petition, 84-85. *See, e.g.*, EX1003, ¶¶192-202, ¶195 discussing EX1021 with pivot points at the “same level.” Velinsky discusses how he instructed the creation of Appendix A, which shows kinematic movement (not linkage shape) of that four-bar mechanism—with aligned points—functioning exactly as he expected and just like the movement of offset pivot points of the KR996 patent figures would be expected. EX1003,

¶¶196-202. In other words, Appendix A supports that POSITA can provide a four-bar mechanism with aligned pivot point connections that works. *Id.*

Fleming provided diagrams of a four-bar mechanism that he alleges does not work. POR, 55.¹⁵ Fleming's diagrams at most show it is possible to create a mechanism that does not work, without any effort to try to make it work. *See* EX1043, 96-98 (affirming bodily incorporation), 120-122 (discussing not considering loader arm design changes), 123 ("I did not try to fix"). As discussed above at length, this is not the standard of obviousness, nor the requirements of a reasonable expectation of success.

Ultimately, the Petition has shown that four-bar mechanisms were a well-known design option for skid steers (including KR996's CUL), for many years prior to the '386 patent. And four-bar mechanisms with low pivot points, as recited in the claims, and reasons to provide low pivot points, were also well known prior to the patent. Thus, all of the relative dimensions recited in these claims are well-

¹⁵ Fleming's "modeling" does not show the bucket vertical movement but movement **toward the operator** (*contrast* POR, 10 with "vertical travel path") and shows an actuator **without any appreciable change to its length**, which is incorrect. EX1043 58-60 (confirming actuator movement in four-bar).

understood, result-affecting variables and benefits of providing low pivot points were recognized in the prior art and by fundamental engineering principals.¹⁶ PO does not dispute this, choosing instead to argue for an overly rigid interpretation of the prior art and improperly demand for bodily incorporation, while ignoring the perspective of POSITA.

VI. SECONDARY CONSIDERATIONS OF NON-OBVIOUSNESS

PO's evidence of secondary considerations is fundamentally flawed because it lacks the required nexus to the claimed invention. All of PO's arguments and evidence are premised on the assertion that PO was the first to invent a vertical-lift CUL. The cited evidence—such as magazine recognition, hearsay testimony about market success, inventor testimony about lift capacity, and stories of Toro engineers—relates to vertical-lift functionality, a feature known in the prior art (KR996). Fleming agrees that the evidence of secondary considerations is directed to vertical-lift. EX1043, 123. As CAFC has made clear, objective evidence of nonobviousness lacks a nexus if it relates solely to a feature that was already known in the prior art. *See Yita LLC v. MacNeil IP LLC*, 69 F.4th 1356, 1364 (Fed. Cir.

¹⁶ Petition also shows it is known to increase D1 and D5. Petition, 72-73, EX1003, ¶¶171-172. The claims recite the relative dimensions with respect to D1 and D5.

2023); *Ethicon Endo-Surgery, Inc. v. Covidien LP*, 812 F.3d 1023, 1034 (Fed. Cir. 2016). Thus, PO's reliance on vertical-lift CUL evidence—known in the art (KR996)—renders its secondary considerations legally irrelevant.

Further, this is a case where nearly all elements of the challenged claims are disclosed in KR996; secondary considerations cannot override such a strong showing of obviousness.¹⁷ *See Leapfrog Enterprises, Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007). Further, PO's evidence should be accorded little to no weight because of evidentiary deficiencies, which will be addressed in a forthcoming motion to exclude. In summary, the POR relies on declarations, portions of deposition testimony, and portions of third-party (Toro) documents from a prior litigation as truth of the matter being asserted, but has not produced the documents or declarants here. *See, e.g.*, POR, 66-72 citing evidence introduced in *ex parte* reexamination in EX1029/EX1030. PO was unwilling or unable to produce the declarants (apart from Fleming) for cross-examination. EX1059, illustrating deceased, health and lack of control. Regardless, not only are declarations of the

¹⁷ Velinsky reviewed the secondary considerations and found them related to the applying vertical-lift to CUL and concluded that those considerations did not alter his opinion finding the claims obvious over KR996. *See* EX1003, ¶26; EX2021, 59.

deceased Hartke and unavailable Hutchison (both inventors of the '386 patent) are hearsay, they are also self-serving statements made in the context of defending their patent's validity. Further, PO's selective quotation of deposition testimony—without providing the full transcripts, despite Petitioner's requests—invites distortion and deprives Petitioner and the Board of necessary context. *See id.*

PO's evidence is also not supportive of non-obviousness. Lift capacity performance is not claimed, and struggle for performance metric vis-a-vis radial-lift is not indicative of non-obviousness. *See* POR, 71-74. It is standard industry practice to survey the market and benchmark against competitors and according to Fleming supports obviousness. *See* EX1046, 66-67, 72. Moreover, Petitioner's commercially available CUL differs from PO's CUL and this patent. Finally, the Toro application does not support a struggle to create a vertical-lift CUL, but only a difficulty in using a specific scissor-type mechanism on CUL. POR, 67-68 citing EX2004, [0007]. The Toro inventors have testified just that—a fact that PO fully knows and has previously relied upon—but does not disclose here. *See* PGR2020-00081, Paper 1, 41-43 (PO relying on Toro inventors' testimony show that this statement is specific to “front mounted scissor mechanism” and EX1060, 7-8, EX1061, 8 (showing Toro inventors thought vertical-lift on CUL “would not be difficult,” but “easily adaptable”).

**VII. PO'S INFLAMMATORY RHETORIC ATTACKING DR. VELINSKY
IS CONTRARY TO THE ACTUAL RECORD**

PO repeated attempts to discredit Velinsky are unfounded and serve only to distract from the actual issues before the Board. *See, e.g.*, POR, 2. The record demonstrates that Velinsky is a highly qualified technical expert, with opinions grounded in relevant experience and thorough understanding of the technology at issue. *See* I.B.

PO mischaracterizes Velinsky's testimony, often citing responses to questions that did not appear directed to obtaining relevant substantive information. He did not "struggle" to describe how components of the CUL were positioned (POR, 31); he referred counsel to CUL layouts in prior art of record and explained component locations are "design choice." EX2021, 25-28. Whether Velinsky chose to list hydraulic attachments in deposition, components not claimed or even described in the '386 patent, says nothing as to his qualifications. PO's accusation that Velinsky "admitted" to using "hindsight" is a distortion of the record. *See* POR, 34. Rather, Velinsky explained the truism he "had to look to the claims to know what the technology was." EX2021, 54-57.

PO also, without merit, criticizes Velinsky for not personally generating CAD drawings, implying this undermines his credibility. It is standard practice for experts

to rely on technical staff or assistants for tasks such as CAD modeling. *See, e.g.*, EX1003, ¶¶179, 197; EX2021, 14 (discussing creating Appendix A “the same way that I would tell my graduate students or staff in the research center.”). Indeed, PO’s own expert, Fleming, admitted that he does not personally generate his CAD drawings but relies on his team. EX1043, 27-28. This includes the drawings in his declaration. *Id.*, 84. What is relevant is whether Velinsky’s analysis and conclusions in his declarations are his own; they are. EX1003, XI.

VIII. CONCLUSION

The Board should find all challenged claims unpatentable.

Respectfully submitted,

/David M. O’Dell/
David M. O’Dell
Lead Counsel for Petitioner
Registration No. 42,044

Dated: December 3, 2025

CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. § 42.24, the undersigned attorney for the Petitioner declares that the argument section of this Reply has a total of 5,500 words, according to the word count tool in Microsoft Word™.

/David M. O'Dell/
David M. O'Dell
Lead Counsel for Petitioner
Registration No. 42,044

CERTIFICATE OF SERVICE

The undersigned certifies that, in accordance with 37 C.F.R. § 42.6(e), service was made on Patent Owner as detailed below.

Date of service December 3, 2025

Manner of service Electronic Mail: rbrophy@atllp.com
mvandertuig@atllp.com;
mvandermolen@atllp.com

Documents served **Petitioner's Reply**
Exhibits EX1042-EX1055, EX1059-EX1061

Persons served Richard L. Brophy
Armstrong Teasdale LLP
7700 Forsyth Boulevard, Suite 1800
Saint Louis, Missouri 63105

Marc Vander Tuig
Armstrong Teasdale LLP
7700 Forsyth Boulevard, Suite 1800
Saint Louis, Missouri 63105

Michael J. Vander Molen
Armstrong Teasdale LLP
7700 Forsyth Boulevard, Suite 1800
Saint Louis, Missouri 63105

/David M. O'Dell/
David M. O'Dell
Lead Counsel for Petitioner
Registration No. 42,044