

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Kubota North America Corporation,

Petitioner

v.

Vermeer Manufacturing Company,

Patent Owner

IPR2025-00169 (U.S. Patent No. 9,321,386)

PETITIONER'S REPLY

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Vermeer (“PO”) touts that they have invented and patented a vertical-lift compact utility loader (CUL) and devotes large portions of their Response (Paper 22/23, “POR”) to discussing long-felt need, commercial success, and industry praise for this equipment 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 this. Faced with KR996, PO now contends its claims are patentable because they include one or more commonplace features—such as engine brackets, tracks instead of wheels, low loader connections, or a mainframe that includes welds—that KR996 does not expressly describe. The Petition demonstrates these features were well known, obvious design choices providing predictable benefits to KR996’s CUL. Thus, PO’s reliance on these conventional features does not render its claims patentable.

I. SUMMARY OF ARGUMENTS PRESENTED IN THIS REPLY

POR repeats several arguments that are factually and legally flawed. These are addressed in summary below, and in detail in the following sections.

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

Rather than consider how a POSITA would approach the prior art combinations of the Petition, PO and their expert, Dr. Fleming, rigidly assume that every component illustrated in the prior art figures must remain exactly as depicted in that patent's not-to-scale figures. PO's arguments are premised on Fleming's assistants copying figures from KR996 to form a CAD model associated with the KR996 CUL. EX1043, 83-84 (Fleming describing "one of [his] engineers" "sketch[ing] over" images of the prior art to create an "overlay"). These CAD figures are fundamentally flawed as they are based on KR996's figures, which are not to scale and illustrative, not defining absolute component locations. Further building on this faulty premise, POR and Fleming compound their errors by overlaying a reproduced portion of a secondary reference figure—Bares' track—onto a generated CAD drawing of KR996, without contemplating any engineering judgement or even common sense. These constructed drawings serve as the basis for PO's arguments that the obviousness combinations do not work due to component interference. PO further contends that this interference means KR996 either teaches away from proposed combinations, or defeats the intended purpose of KR996. This is not the proper context for an obviousness analysis.

The facts of this case are very similar to those described and adjudicated in *Allied Erecting & Dismantling Co. v. Genesis Attachments, LLC*, 825 F.3d 1373, 1381 (Fed. Cir. 2016). *Allied* is an appeal of an IPR final written decision in which the Federal Circuit affirmed the PTAB and rejected the patent owner's arguments of bodily incorporation and teaching away. It is noted that *Allied* also involved construction equipment, like the present case, so the facts are very similar.

1. 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 the POR. Fleming simply assumed 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 or simple common sense. As indicated above, in PO's more egregious bodily incorporation, PO's expert simply copies the

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, 957 (Fed. Cir. 2000).

outline of a portion of Bares' track and places it on top of a CAD figure generated from KR996. If any item, such as a fuel tank, drive motor, track, or engine, was even slightly in the way, Fleming determined that the combination did not work. Fleming admitted that in doing so he was employing bodily incorporation.²

2. Design changes do not support teaching away

In addition to arguing that the bodily incorporations did not work, the POR 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 also 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] 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.*

² EX1043, 97-98 when asked if relying on "bodily incorporation"—of "taking the exact figure as it is from Bares to the exact figure as it is in KR996 and see if they work", Fleming replied "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]."

(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 underpins its arguments with bodily incorporation and teaching away theories. POR, 43-44, 51-53, 60-62. Here the same conclusion follows—PO’s bodily incorporation-based 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. There should be no serious

dispute that Velinsky is fully qualified. 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, ¶¶8-16; EX1036. In addition to being a professor, he also served as the Director of the Advanced Highway Maintenance & Construction Technology Research Center (“Research Center”) from 1991-2016. *Id.* (note that the priority date of the 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.* This included developing **mini** skid steers prior to the '386 priority date. EX2021, 21.

Importantly, PO admits that skid steers with vertical-lift were well-known in the art 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, 9-11. While Petitioner disputes that a POSITA would need to have specialized first-hand expertise in compact utility loaders (CUL), Velinsky has personally designed mini skid steer or CUL and is qualified to opine on them, even under this arbitrary standard set by PO. EX2021, 11-12.

Indeed, it is PO's expert, Dr. Fleming, that has never designed a CUL. EX1043, 24 (indicating no "design development work specifically for mini skid steer. The ones I worked on were a full-size skid steer with a cab"). Fleming had no experience with CULs prior to the '386 patent's priority date in 2015. EX1043, 25 (indicating first CUL experience "when we were doing the analysis [] with the Vermeer [v.] Toro PGR issue...around 2020"). Thus, even by PO's own unsupported requirements, Velinsky was the only qualified expert on CULs as of the patent's priority date.

Further, POR's complaints mischaracterize the record; Velinsky did not "struggle[]" to describe CUL component positions but referenced the clear prior art teachings and explained their configuration is a "design choice." EX2021, 25-28. He did not admit to using hindsight. Instead, he confirmed he did not use the claims as a roadmap, but merely to understand the technology. EX2021, 54-57. As to the questions about hydraulic attachments other than a loader, a) Velinsky discusses attachments in general, and b) other attachments are not claimed. EX2021, 10-12, 29-31, 109-110.

Further, POR criticism of Velinsky's CAD use is unavailing as its standard practice to rely on technical staff for CAD or modeling tasks. *See* EX1003, ¶172 (indicating he "oversaw application of these basic engineering principles...through

manual calculations as well as through the use of ...computer-aided design.”), ¶194; EX2021, 14. Similarly, PO's own expert, Fleming, admitted that he does not personally generate his CAD drawings but relies on his team. EX1043, 27-28.

II. CLAIM CONSTRUCTION OF “MAINFRAME”

Prior to the institution decision (“ID”) (Paper 16), the term *mainframe*³ was thoroughly briefed, and its plain and ordinary meaning is understood to be a “primary supporting structure.” ID, 26. The Board rejected PO's proposed construction that “the ‘mainframe’ must be ‘always present and not selectively removeable.’” ID, 21. 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, 35. Despite this, PO attempts to recycle their proposed construction by arguing that items that are not always present and that are selectively removable are so-called “secondary” structures (an artificial description not found in the '386 patent or the relevant art) and should be

³ See, e.g., element [50.2a]. Claim terms in this paper are in bold-italics.

excluded from a *mainframe*.⁴ 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 claim term *mainframe* (or “main frame”) is used often in the prior art and with varying scope. The POR identifies two prior art patents with a single, unseparable, component labeled a “main frame” or “main frame assembly.” *See* EX2017, EX2018. Other prior art patents use the term to describe multi-component assemblies, with many such components being readily separable or removable.⁵ In

⁴ It is noted that “[b]oth [PO] and Petitioner agree that the mainframe need not have a unitary construction or lack of separability.” ID, 35, citing briefs.

⁵ EX1047, 5:50-55 (“main frame 24” includes uprights 56, attached 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, 8:67-9:8 (forming “main frame assembly 10” by being “modularly assembled” at “different sites” including by “connect[ing]” a first component and then “at the same or a different location(s)” connecting another assembly); EX1050, 6:4-46 (“loader main frame” including,

another example, a 2005 service manual for a Bobcat skid steer identifies a “MAIN FRAME” that includes many components, such as a tail gate, 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

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inter alia, “transmission case 70.”); FIG. 3; EX1006, FIG. 1 (main frame 1 including attachment members 11).

EX1051, 217. All of this is consistent with the phrase “primary supporting structure,” which does not require the absence of selectively removeable components. The term “primary” is that the structure be “of first rank, importance, or value.” EX1052, 4 (“primary”); *see also*, EX2007, 4.

B. KR996’s CUL mainframe includes fixture 41 with its loader unit.

Here, the machine at issue is KR996’s *compact tool carrier*⁶ (or compact utility loader (CUL), mini skid steer), which includes vehicle 10 and loader unit 40.⁷ Both the vehicle 10 and the loader unit 40 include frame portions. The vehicle has body 11 and the loader unit has fixture 41. Thus, the primary supporting structure or *mainframe* of the KR996’s compact utility loader is the combination of the body 11

⁶ *See, e.g.*, [50.0].

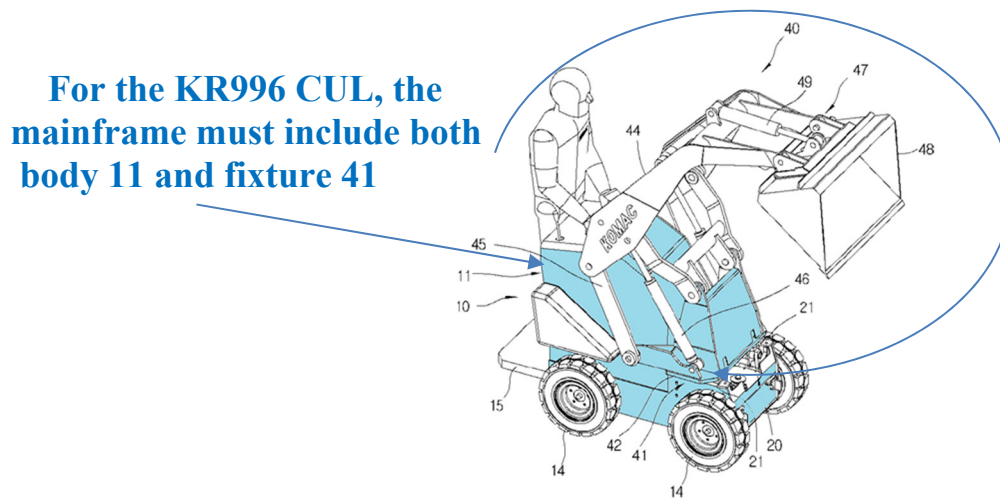
⁷ Each claim recites that the main frame is for *supporting a loader*. The appropriate starting point is always with the language of the asserted claim itself. *See Comark Commc’ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1186 (Fed. Cir. 1998). “[T]he context of the surrounding words of the claim also must be considered in determining the ordinary and customary meaning of those terms.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (quoting *ACTV, Inc. v. Walt Disney Co.*, 346 F.3d 1082, 1088 (Fed. Cir. 2003)).

and the fixture 41. *See, e.g.*, EX1005, FIG. 9. The fixture 41 and the body 11 together ***support the loader***.⁸ Velinsky confirms that both the body 11 and the fixture 41 are critical and important to providing a primary support structure for the compact utility loader. EX1042, ¶2. Fleming also agrees. EX1043, 105-106 (describing fixture 41 when “attach[ed]...to the main body...so when you have it configured for operation as a loader, then you would be having **loads** going through that fixture and through that combination plate down...[the fixture is] one of many components that are **critical**”).

PO argues that only body 11 is the primary support structure. POR, 43. This is incorrect for multiple reasons. For one, body 11 would be the primary support structure for KR996's vehicle 10 operating alone, not as a loader. In contrast, the KR996 loader includes both vehicle 10 and loader unit 40; and the primary support structure for it would include body 11 and fixture 41 that are necessary to support the ***loader adapted to carry a tool, e.g., loader arm(s)***. 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, 31-32 including fn. 4; EX1003, ¶76 (describing ***mainframe*** includes “body 11...as well as other portions”

⁸ *See, e.g.*, [50.2a].

of KR996 “that support the loader” which “when in operation the mainframe of the vehicle is in one piece providing support for the loader.”); EX2021, 69-70 (agreeing original opinion applies to Board’s construction); EX1042, ¶¶2-4.



EX1042, illustrating KR996’s CUL of FIG. 9.

Also, KR996’s loader is fully constructed when vehicle 10 is joined or assembled with loader unit 40. That this assembly process happens near the job site does not negate the fact that when assembled, the vehicle body 11 and the loader unit fixture 41 together form the primary supporting structure of the loader. Further, the POR argues that the meaning of primary support structure excludes “any supporting structure that is selectively removable during various operations of the machine.” POR, 31. But, the loader unit 40 including the fixture 41 is *not* removable during the loader operations of the machine.

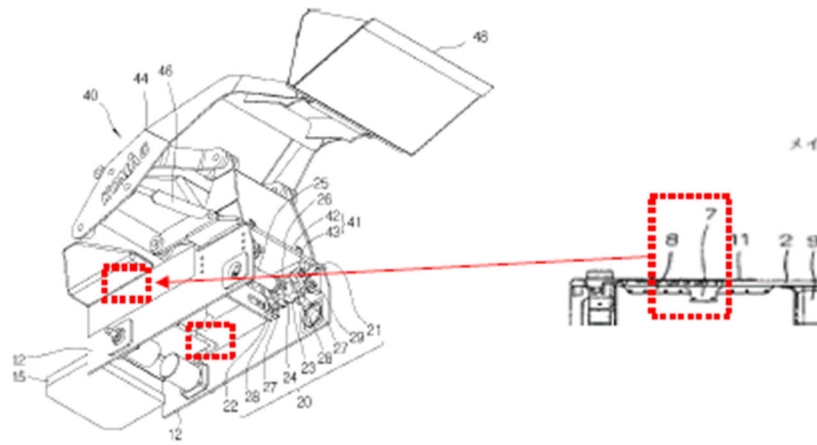
Thus, the Board's ID construction of primary supporting structure is correct and includes the combination of the body 11 and the fixture 41 which supports the loader of KR996 by attachment of its linkages/actuator.

III. GROUND I—KR996+JP705

A. Petition supports combining JP705's engine bracket teachings.

The Petition described incorporating JP705's *engine bracket*⁹—a welded bracket extending from a side of a mainframe—in KR996's mainframe to secure KR996's illustrated engine. As explained in the Petition, this provides engineering advantages such as reducing fasteners, smooth surfaces, efficient loading and structural advantages. Petition, 23-26, 32-35; EX1003, ¶¶60-62, 83-84. *See also*, EX1043, 52-54. 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. *Id.* PO's arguments directed to JP705's mainframe size and JP705's engine position are merely arguing the references separately and ignoring the combination of teachings proposed.

⁹ *See, e.g.*, [50.2b].



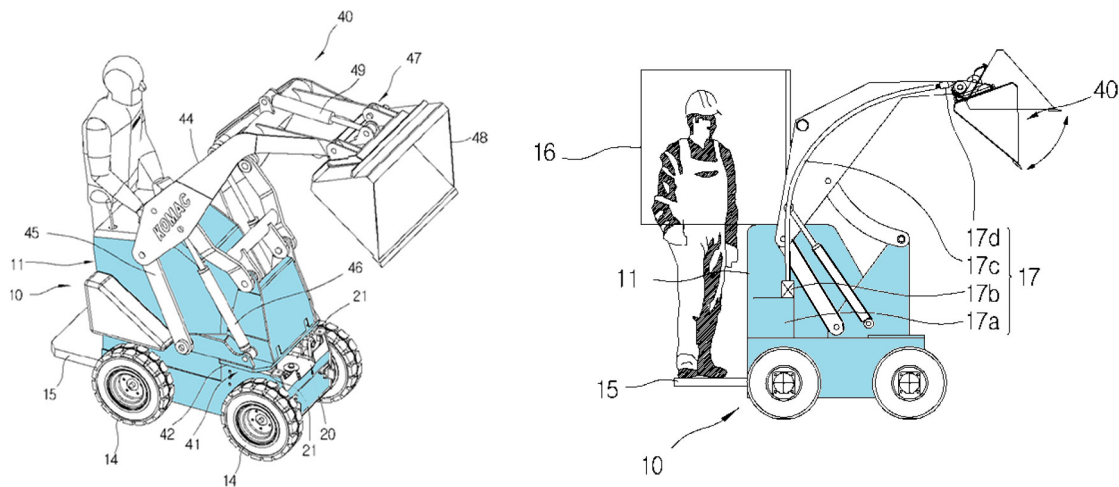
EX1005, Fig. 10, EX1006, FIG. 1 (portion)
(annotated)

Petition, 35.

B. PO arguments on linkages and 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(s) and actuator pivot point connections to a *mainframe* just as claimed in the ’386 patent. *See, e.g.*, Petition, 35-39. The Board agreed, finding “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, 35. Whether another vehicle, such as an excavator can be formed, does not rebut that KR996’s loader provides the claimed configuration. KR996’s loader mainframe—which includes components of the 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.

C. Mainframe incorporating a single weldment is obvious.

Certain claims recite that the *mainframe incorporates a single weldment*. *See, e.g.,* [52]. The Petition shows that the JP705 engine bracket is attached by welding; thus, the combined teaching of KR996-JP705 provides a *mainframe*

incorporat[ing] a single weldment. Petition, 45-46.¹⁰ It is uncontested that it would have been obvious for the KR996 mainframe to include a single weldment. *See* EX1043, 113-114.

The term “incorporates” is an open-ended term analogous to *includes* and does not necessitate the mainframe consist of a single weldment, but allows some portions fastened in other manners. *See* EX1053, 4. This is consistent with the use of “incorporates” in other patent claims in the art. *See* EX1054, EX1055. This is also consistent with how the PO has presented similar limitations in the patent family. *Contrast*, claim 3 of USP 12,098,063, reciting “wherein the mainframe **is** a single weldment.”

The POR incorrectly construes the claim as requiring that the mainframe consists (in its entirety) of a single, unitary welded piece. POR, 44. Even if this were the case, the Petition shows this is an obvious design choice. Petition, 47. KR996’s CUL continues to operate in its loader function if the loader unit is attached by welding. *See* EX1043, 116-117 (“do some kind of permanent attachment”). Certainly, trade-offs exist between fasteners and welding, including ease of

¹⁰ 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.

separability, “operational efficiency,” and number of parts. *See* EX1005, [0007]; Petition, 46; EX1042, ¶5 (discussing advantages of dedicated loader); EX1043, 103-104 (confirming advantageous to just have loader function). Trade-off’s do not mean it’s non-obvious. *See Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006), *PAR Pharm., Inc. v. TWI Pharms., Inc.*, 773 F.3d 1186, 1197–98 (Fed. Cir. 2014).

IV. GROUND II—KR996+JP705+Bares+Beltrami

A. Petition supports KR996 drive mechanism with Bares’ tracks.

The Petition shows wheels or *tracks for propelling*¹¹ the machine were well-known alternatives and also details the specific benefits of a track for KR996, such as improved traction, better ability to cross holes, and reduced ground pressure—all of which are particularly advantageous in demolition and deconstruction environments. *See* Petition, 54-56, EX1003, ¶¶142-146. PO does not contest that these drive assemblies were known alternatives, instead premising their POR on an overly narrow reading of the disclosure of KR996 as applicable only to certain terrain (which it is not) and a mere bodily incorporation of the proposed combination.

¹¹ *See, e.g.*, [55.5a].

1. Bares' track drive mechanism is advantageous for KR996's application

PO argues KR996 is specifically designed for “indoor deconstruction work,” would not be operable on uneven terrain needing “clean surface,” and thus, would not benefit from tracks. POR, 49-51. This is incorrect. KR996 explicitly discusses its application to “building deconstruction work,” which inherently involves uneven terrain and debris that its vehicle must traverse—conditions where tracks excel. EX1005, (54); EX1003, ¶¶144-145. Also, the use of mini skid steers with tracked assemblies for indoor demolition tasks is common. *See* EX1057 (illustrating indoor operation of Toro tracked mini skid steer)(EX1062); EX1058, 3:64-4:2, FIG. 1 (suggesting indoor use for tracked loader).

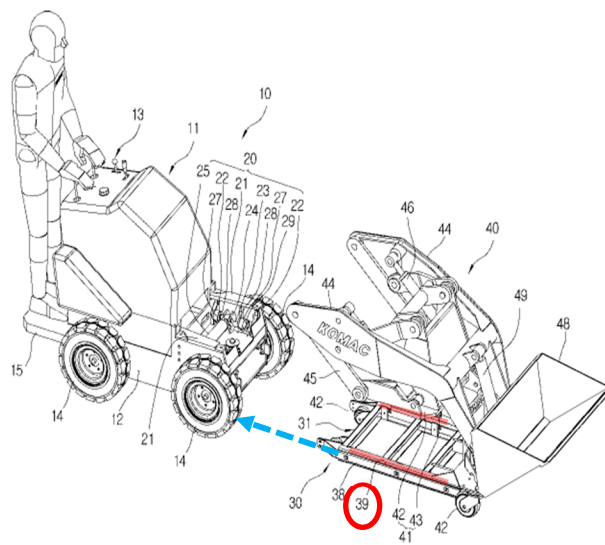
Further, even if a level surface is needed for the attachment/detachment functionality as asserted by PO (POR, 50), this would only apply to the specific location where attachments/tools are changed—not to the overall operation of the machine. In practice, attachments are typically swapped away from the worksite and the machine traverses various surfaces to perform its work and to reach those locations. *See* EX1043, 48-49; EX1058 each supporting changing attachments away from worksite. Thus, the operational advantages of tracks remain regardless of any attachment/detachment terrain limitations.

2. KR996's wheels are not essential for its CUL function or detachability

KR996's detachability does not require wheels. *See* EX1005, 2. The POR narrative of tires "flex[ing]," "grip[ping]," and "bow[ing] out" to perform KR996's attachment/detachment vastly overstates the role of the tires actually described in KR996. *See* POR, 46-47. What KR996 actually says is there is "contact" between wheel 14 and guide plate 38 of the bogie. EX1005, [0036]. From this mere mention of "contact," PO spins a tale alleging it is the extent of flexion or bowing out of a tire that is critical to its attachment/detachment functionality. *See* POR, 47. KR996 never discusses that its tires "bow out under the load of the machine," nor discusses any reliance on the extent of compression of its tires. *Id.*

Moreover, even if there is some gap-tuning required to address a difference between track and wheel rigidity or compression, there is no reason that the contact between the track and bogie is not maintained. KR996 describes how to address any difference in the lateral distance between track/bogie. KR996's "liner (39)" is precisely for the purpose of "adjust[ing] the gap" between the drive mechanism—wheel 14—and the bogie—guide plate 38. EX1005, [0005], [0053]. Therefore, should a gap be different between the extent of flexion of wheels compared to the flexion (or purported lack thereof) of tracks, KR996's liner compensates for it. *See, id.* Further, PO overstates the differences between tracks and wheels, the track is

positioned at the same location, comprises a similar material, is rotating in the same direction as a wheel, and extends to sufficient height at the front of the vehicle to contact the guide plates (e.g., compare track extending over front idler wheel 152 versus KR996's wheel 14). See EX1051, 206 (describing rubber); EX1010, FIG. 7, arrow 160A, track thickness, 5:29-348.



adjustable thickness liner (39)

EX1005, FIG. 1 (annotated), [0053]. PO's argument of loss of an "alignment feature" lacks any citation to KR996 and declines to consider availability of the track. See POR, 48.

Moreover, POSITA are not mere automatons void of any engineering knowledge. The POR simply ignores the features of Bares' rotating track and the plurality of rotating wheels with its assembly, which are all available to provide a

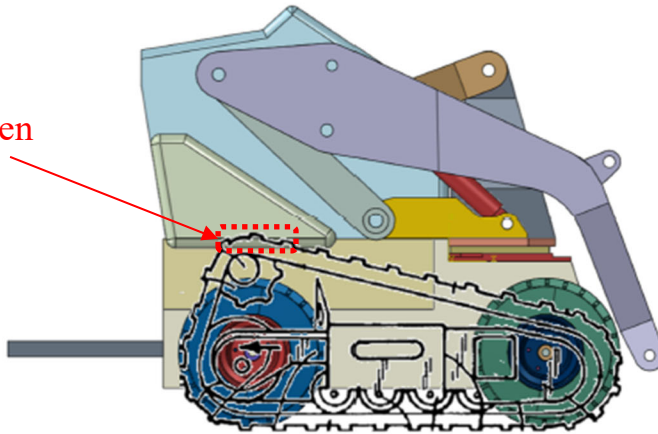
directional force, if desired. *See* EX1010, 5:33-43, 6:59-7:11 (describing rotating wheels). As discussed above, KR996 explicitly discloses one example, a liner, readily available for modification to provide desired contact. Further, *Allied* shows that such design changes do not negate a motivation to combine.

3. Incorporating tracks is well within the skills of POSITA

PO also argues that POSITA could not change the drive assembly to a tracked assembly because the track and/or drive motor—if Bares' track is cut-and-pasted onto the flawed CAD drawing of KR996's CUL—would interfere with components of KR996's CUL. This argument is based on a rigid, literal overlay of patent figures ignoring that bodily incorporation is not required, that patent drawings are not scale, and that POSITA routinely make necessary modifications.

Both experts agree that in practice it is known to make modifications in designing vehicles. *See* EX1003, ¶¶56, 164, 191 (describing POSITA typically address design choices modifications in configuring components like engine drive mechanism); EX1043, 23-24 (discussing design issues), 59-60 (moving drive line components for interference). Yet, when developing his figures for this proceeding, Fleming “did not try to” make any design or engineering modification to address the interference. EX1043, 97, 123.

Exemplary alleged
“significant interference”
that Dr. Fleming did not even
try to address is minimal



POR, 52
Dr. Fleming's KR996 CAD model
with Bares' track “superimposed”

Perhaps most telling of POSITA's abilities, the '386 patent does not describe its engine or describe or illustrate the position of its drive motors or fuel tanks. *See* EX1001, 3:24-30, 4:10-13, 5:52-59 (all discussing drive components that are “not shown”). Fleming agrees that the selection of proper engine and drive line components would be an “engineering project for designing product”—one within the capability of POSITA like changing from tracks to wheels. EX1043, 35-36, 39. There are a myriad of options for a drive assembly and tank that can affect and address those space constraints including that those components (*e.g.*, drive motor, tanks) come in different shapes and sizes. EX1043, 38-44, 86-87.

B. 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.*, [55.2d], [55.3], [55.4]. There is also no genuine dispute that Beltrami teaches having the *pivot point[s]* for the four-bar mechanism low on the *mainframe*.¹² And there is also no dispute that positioning the pivot point connections 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 of a loader of any size. These and additional benefits of a reduced frame and low COG were well-recognized by POSITA prior to the '386 patent and are detailed in the Petition and by Velinsky (including with supporting evidence). *See* Petition, 57-59, 68-72; EX1003, ¶¶173-

¹² Various claims in this Ground recite positions of 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. Petition discusses these positions in detail, the POR characterizes these as “positioned relatively low on the mainframe.” POR, 10. *See also*, EX1001, 5:10-6:8 (lacking criticality).

180 (citing various support). Fleming agrees that the benefits of placing these pivot points low—reducing frame and lowering COG—are “fundamental principles” of design. EX1043, 61-63, 77-80. Thus, the analysis in the Petition satisfies a *prima facie* finding of obviousness for these claim limitations.

PO's dispute seems to arise from an assertion that Beltrami explicitly recognizes benefits to low pivot points only in the context of improvements with respect to radial-lift and improvement of fore-aft shifts of COG relative to radial-lift. *See* POR, 54-58. However, a prior art reference is not limited to any specific problem it addresses; its teachings are available for all they fairly disclose to POSITA. *See in re Kahn*, 441 F.3d 977, 987 (Fed. Cir. 2006); *Cross Med. Prods., Inc. v. Medtronic Sofamor Danek, Inc.*, 424 F.3d 1293, 1323 (Fed. Cir. 2005).

Beltrami states that “the **pivot points 24, 26 and 30** [those connecting linkages/actuator and frame of the vertical-lift] **can be kept in such a low position on the vehicle that no supporting frame is needed.**” EX1008, 3:35-37; Petition, 69, 71. This is not constrained to a “supporting frame” only of a radial-lift. And lowering the upper frame requirements and the pivot point attachments lowers COG, that's fundamental physics. *See, e.g.*, EX1003, ¶¶149-150, 174. These principles apply whether in the context of radial-lift or vertical-lift or myriads of other distinctions the POR and Fleming may raise.

1. PO's teaching away argument is legally flawed

PO contends that there is a component in the KR996's patent figures that is in the way of the proposed lower pivot that effectively "teaches way" from the proposed modification. *See* POR, 59-60. Fleming presumes there is a "wheel motor" and mounting mechanism that cannot be moved, resized, or otherwise redesigned. *Id.* As discussed *supra*, I.A and detailed in *Allied*, the entire premise of this argument is legally flawed. PO relies on not-to-scale patent drawings, bodily incorporation, and automaton perspective, and fails to recognize even design changes were required, case law holds that it does not support teaching away. Tellingly, Fleming, when representing Vermeer as a petitioner, was quick to opine about routine changes with POSITA's ability (including pivot point placement). EX1046, 58-59.

Moreover, this Challenge includes a tracked assembly. The means that as illustrated in the angled track of Bares, there is sufficient room—even under bodily incorporation premise—for low pivot points (forward on the mainframe) having the claimed vertical distance to the rotational axis (here an elevated rear axis), all while not interfering with KR996's mounting mechanism. *See* EX1003, ¶192, Figure A. Further, Bares' tracked configuration has *no drive motor* at the front wheels so that component is simply not there to cause the interference alleged by PO. *See* EX1010, FIG. 3, 8 (drive motor 16B, 146 at raised, rear sprocket). Further, Velinsky affirmed

that POSITA would have known to address any interference, space constraints and operator safety. EX1003, ¶¶189, 191 (discussing modifying linkage shape, into/out of plane configurations, applying safety fences/barriers, etc.)

2. PO's reasonable expectation argument relies on improper bodily incorporation

Velinsky provided kinematic diagrams, which show movement not specific shapes, illustrating a four-bar mechanism where the pivot points are horizontally aligned as shown in the prior art. *See, e.g.*, EX1003 ¶¶183-198 and citing EX1021 with pivot points at “same level”. Velinsky discusses how he instructed the creation of Appendix A, which shows the kinematic movement 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. *Id.*, Appendix A. This shows POSITA can provide a four-bar mechanism with aligned pivot point connections that works. *Id.*

PO's expert, Fleming and his assistants, also provided an animation of a four-bar mechanism—one that does not work. POR, 63-64, EX2016.¹³ All Fleming's

¹³ Fleming's animation provides a coupler point/bucket attachment movement that is ***not vertical but extends toward the operator*** even prior to any alleged interference

animation shows is that it is possible to create a mechanism with aligned pivot points that does not work, without any analysis 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”).¹⁴ That Fleming can create an embodiment having component interference and undesired movement does not render the combination inoperable, is not the standard of obviousness, nor indicative 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. Further, 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

(*contrast* POR, 10 with “vertical travel path”) and shows an actuator ***without any appreciable change to its length*** (which would be required to make a vertical-lift operate). EX1043, 58-60 (describing POSITA “would know how to position the actuator to make the [] setup move,” “that works with your design,” and agreeing in the lifting operation, “the length of the actuator will change”).

¹⁴ It is not surprising Velinsky’s model provides desired motion as EX1021 suggests the exact same pivot point location.

the patent. Thus, all of the relative dimensions recited in these claims are well-understood, result-affective variables and benefits of providing low pivot points was recognized in the prior art and by fundamental engineering principals.¹⁵ 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.

V. SECONDARY CONSIDERATIONS OF NON-OBVIOUSNESS

PO's arguments for non-obviousness based on secondary considerations fail because they lack any nexus to the claims as all PO's arguments and evidence are premised on the incorrect assertion that they were the first to invent vertical-lift CULs. *See* EX1043, 123 (responding to if evidence is directed to vertical lift, answering "primarily, yes"). However, it is undisputed that KR996 discloses a vertical-lift CUL, demonstrating that PO was not the first to invent this. And as can be seen from the previous sections of this paper, our discussions are not directed to vertical lift, PO's evidence does not show these conventional features drove any of their secondary indicia. Objective evidence of nonobviousness lacks a nexus if it

¹⁵ 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.

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. 2023).

Further, 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. POR, 68-74 citing EX1029, EX1030. But Petitioner has been denied the opportunity to get the complete documents of record and/or depose the declarants providing the testimony. *See* EX1059. A forthcoming motion to exclude will be filed. And Toro's patent application at most supports a difficulty in applying a specific "scissor mechanism" on a CUL as PO clearly knows but mischaracterizes here. *See* EX2004, [0007]; PGR2020-00081, Paper 1, 41-43 (PO relying on statement as not related to vertical lift generally), EX1060, 7-8, EX1061, 8 (showing Toro inventors thought vertical-lift on CUL "would not be difficult," but "easily adaptable.") Market analysis, a standard practice, is not evidence of copying or nonobviousness. EX1046, 66-67, 72.

VI. CONCLUSION

The Board should find all challenged claims unpatentable.

Respectfully submitted,

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Dated: Dec. 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 5,555 words, according to the word count tool in Microsoft Word™.

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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

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