

# United States Court of Appeals for the Federal Circuit

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**FASTSHIP, LLC,**  
*Plaintiff-Appellant*

v.

**UNITED STATES,**  
*Defendant-Cross-Appellant*

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2017-2248, 2017-2249

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Appeals from the United States Court of Federal Claims in No. 1:12-cv-00484-CFL, Judge Charles F. Lettow.

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Decided: June 5, 2018

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MARK LEE HOGGE, Dentons US LLP, Washington, DC, argued for plaintiff-appellant. Also represented by CARL PAUL BRETSCHER, SHAILENDRA K. MAHESHWARI, RAJESH CHARLES NORONHA; DONALD EDWARD STOUT, Fitch, Even, Tabin & Flannery LLP, Washington, DC.

SCOTT DAVID BOLDEN, Commercial Litigation Branch, Civil Division, United States Department of Justice, Washington, DC, argued for defendant-cross-appellant. Also represented by CHAD A. READLER, GARY LEE HAUSKEN.

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Before MOORE, WALLACH, and CHEN, *Circuit Judges*.

WALLACH, *Circuit Judge*.

Appellant FastShip, LLC (“FastShip”) sued the United States (“the Government”) in the U.S. Court of Federal Claims, seeking damages for patent infringement pursuant to 28 U.S.C. § 1498 (2012).<sup>1</sup> According to FastShip, the U.S. Department of the Navy’s (“Navy”) *Freedom*-class Littoral Combat Ships (“LCS”), specifically the LCS-1 and LCS-3, infringe claims 1 and 19 of U.S. Patent No. 5,080,032 (“the ’032 patent”) and claims 1, 3, 5, and 7 of U.S. Patent No. 5,231,946 (“the ’946 patent”) (collectively, “the Asserted Claims”) (together, the “Patents-in-Suit”).

Following the Court of Federal Claims’ opinion construing various terms of the Patents-in-Suit, *see FastShip, LLC v. United States (FastShip I)*, 114 Fed. Cl. 499 (2013), the Government filed a motion for partial summary judgment pursuant to Rule 56 of the Rules of the Court of Federal Claims (“RCFC”), arguing that the LCS-3 was not “manufactured” by or for the Government

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<sup>1</sup> Section 1498 “waives the Government’s sovereign immunity and provides a remedy [w]henever an invention described in and covered by a patent of the United States is used or manufactured by or for the United States without license of the owner thereof or lawful right to use or manufacture the same.” *Liberty Ammunition, Inc. v. United States*, 835 F.3d 1388, 1394 n.3 (Fed. Cir. 2016) (citation omitted) (quoting 28 U.S.C. § 1498(a)). By waiving the Government’s sovereign immunity, § 1498 “provides a cause of action against the United States” and, “[a]t the same time, . . . protects government contractors against infringement liability and remedies where it applies.” *Astornet Techs. Inc. v. BAE Sys., Inc.*, 802 F.3d 1271, 1277 (Fed. Cir. 2015).

within the meaning of § 1498 before the Patents-in-Suit expired, J.A. 164. The Court of Federal Claims granted the Government’s Motion. *See FastShip, LLC v. United States (FastShip II)*, 122 Fed. Cl. 71, 86 (2015). The Court of Federal Claims then convened a bench trial and issued a post-trial opinion, holding that LCS-1 infringed the Asserted Claims and awarding FastShip \$6,449,585.82 in damages plus interest. *See FastShip, LLC v. United States (FastShip III)*, 131 Fed. Cl. 592, 627 (2017); J.A. 82 (Judgment).

FastShip appeals the Court of Federal Claims’ grant of the Government’s Motion in *FastShip II* and damages calculation in *FastShip III*. The Government cross-appeals, alleging that, in *FastShip III*, the Court of Federal Claims improperly modified a claim construction from *FastShip I*, thereby resulting in a determination that LCS-1 infringed. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(3). We affirm, with modification to the damages award.

## BACKGROUND

### I. The Patents-in-Suit

Entitled “Monohull Fast Sealift or Semi-Planing Monohull Ship,” the Patents-in-Suit relate to a “fast ship whose hull design in combination with a waterjet propulsion system permits, for ships of about 25,000 to 30,000 tons displacement with a cargo carrying capacity of 5,000 tons, transoceanic transit speeds of up to 40 to 50 knots in high or adverse sea states.” ’032 patent col. 1 ll. 8–13.<sup>2</sup>

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<sup>2</sup> The application that led to the ’946 patent is a continuation of the application that led to the ’032 patent. A continuation patent application is “an application filed subsequently to another application, while the prior application is pending, disclosing all or a substantial part of the subject-matter of the prior application and contain-

The specification indicates that prior to the Patents-in-Suit, these speeds were “not achievable in ships of such size without impairment of stability or cargo capacity such as to render them impracticable.” *Id.* col. 1 ll. 13–15; *see id.* col. 6 l. 59–col. 7 l. 38 (summarizing the purported advantages of the Patents-in-Suit). The parties agree that claim 1 of the ’032 patent is representative of all Asserted Claims in this appeal. It recites:

A vessel comprising:

a hull having a non-stepped profile which produces a high pressure area at the bottom of the hull in a stern section of the hull which intersects a transom to form an angle having a vertex at the intersection and hydrodynamic lifting of the stern section at a threshold speed without the hull planing across the water at a maximum velocity determined by a Froude Number,<sup>3</sup> the hull having a length in excess of 200 feet, a displacement in excess of 2000

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ing claims to subject-matter common to both applications, both applications being filed by the same inventor or his legal representative.” *U.S. Water Servs., Inc. v. Novozymes A/S*, 843 F.3d 1345, 1348 n.1 (Fed. Cir. 2016) (internal quotation marks and citation omitted). The Patents-in-Suit share a common specification. Unless otherwise noted, we cite to the ’032 patent for ease of reference.

<sup>3</sup> “Froude [N]umbers are dimensionless figures representing the ratio of a ship’s speed in knots to the square root of its length in feet and are used to understand drag by describing the physics of a ship’s speed relative to its size.” *FastShip III*, 131 Fed. Cl. at 600 n.6; *see* J.A. 332–33 (testifying, by the Patents-in-Suit’s inventor, on the meaning of Froude Numbers).

tons, a Froude Number in between about 0.42 and 0.90, and a length-to-beam ratio between about 5.0 and 7.0;

at least one inlet located within the high pressure area;

at least one waterjet coupled to the at least one inlet for discharging water which flows from the inlet to the waterjet for propelling the vessel;

a power source coupled to the at least one waterjet for propelling water from the at least one inlet through the waterjet to propel the vessel and to discharge the water from an outlet of the waterjet; and wherein

acceleration of water into the at least one inlet and from the at least one waterjet produces hydrodynamic lift at the at least one inlet which is additional to the lifting produced by the bottom of the hull in the high pressure area which *increases efficiency of the hull* and reduces drag.

*Id.* col. 13 l. 68–col. 14 l. 28 (emphasis added). All of the Asserted Claims include the “increases efficiency of the hull” limitation. *See id.* col. 16 ll. 13–14 (claim 19); ’946 patent col. 14 ll. 22–23 (claim 1), col. 14 ll. 51–52 (claim 3), col. 15 ll. 1–2 (claim 5), col. 16 ll. 8–9 (claim 7).

## II. The Relevant Factual Background

In 2003, the Navy issued a request for proposals related to its LCS program. *FastShip III*, 131 Fed. Cl. at

600.<sup>4</sup> The Navy eventually awarded a team comprised of Lockheed Martin Corp. (“Lockheed Martin”) and Gibbs & Cox, Inc. (“Gibbs & Cox”) a contract to design and build the *Freedom* class of LCS. *FastShip II*, 122 Fed. Cl. at 75; see *FastShip III*, 131 Fed. Cl. at 603. Lockheed Martin and Gibbs & Cox began construction of LCS-1 in February 2005, and LCS-1 was launched in September 2006 and commissioned by the Navy in November 2008. *FastShip III*, 131 Fed. Cl. at 603.

Lockheed Martin and Gibbs & Cox began construction of LCS-3’s first module<sup>5</sup> in July 2009 with the laying of the keel. *FastShip II*, 122 Fed. Cl. at 76. By September 2009, LCS-3’s two gas turbine engines were installed and, by April 2010, at least one, but most likely all four, of the impellers and housings for the waterjets were awaiting installation. *Id.* However, after corrosion was detected in the waterjet tunnels of LCS-1, components from LCS-3’s waterjets were borrowed for use on LCS-1 in May 2010. *Id.* LCS-3’s waterjet impeller systems were installed in July 2010, and LCS-3’s final module was erected in September 2010. *Id.* at 77. Although LCS-3 was launched in December 2010, alignment and connection of the propul-

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<sup>4</sup> The Court of Federal Claims provided a detailed summary of the relevant facts, see *FastShip III*, 131 Fed. Cl. at 598–606; *FastShip II*, 122 Fed. Cl. at 72–77; *FastShip I*, 114 Fed. Cl. at 501–03, and these facts are largely undisputed on appeal. Therefore, we provide only a brief summary of the relevant, undisputed facts necessary to resolve this appeal.

<sup>5</sup> “The *Freedom* class ships are constructed in modules, which are then assembled or erected.” *FastShip II*, 122 Fed. Cl. at 74. “The modules are developed via a phased process that includes material fabrication, paneling, construction, painting, pre-outfitting, and erection.” *Id.*

sion system and testing continued throughout 2011, and LCS-3 was delivered to the Navy in June 2012. *Id.*

On May 18, 2010, the Patents-in-Suit expired. *Id.* At the time of their expiration, “LCS[-]1 was complete and in use by the Navy[] but LCS[-]3 was still under construction.” *FastShip I*, 114 Fed. Cl. at 501 (citation omitted).

## DISCUSSION

This appeal involves three issues, namely, whether the Court of Federal Claims erred in: (1) granting the Government’s Motion as to LCS-3; (2) holding that the hydrodynamic lifting of LCS-1’s stern at a threshold speed infringes the “increases the efficiency of the hull” limitation; and (3) awarding \$6,449,585.82 in damages plus interest. *See* Appellant’s Br. 1–2; Cross-Appellant’s Br. 3; Appellant’s Reply Br. 29–30. We address these issues in turn.

### I. Partial Summary Judgment as to LCS-3’s Non-Infringement

#### A. Standard of Review

“We review a grant of summary judgment by the Court of Federal Claims *de novo*.” *Wells Fargo & Co. v. United States*, 827 F.3d 1026, 1032 (Fed. Cir. 2016). Summary judgment is appropriate “if the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law.” RCFC 56(a).

#### B. The Court of Federal Claims Properly Granted the Government’s Motion for Summary Judgment Based on LCS-3’s Non-Infringement

In granting the Government’s Motion, the Court of Federal Claims determined that “the allegedly infringing LCS-3 was not ‘manufactured’ for purposes of [§] 1498(a) by the date the [Patents-in-Suit] expired” on May 18, 2010. *FastShip II*, 122 Fed. Cl. at 86. *FastShip* argues

that this determination was erroneous as a matter of law. See Appellant’s Br. 54–70. We disagree with FastShip.

### 1. The Meaning of “Manufactured” in § 1498

Neither the Court of Federal Claims, nor the parties, nor this court has identified any binding precedent interpreting the meaning of “manufactured” in § 1498.<sup>6</sup> Therefore, we interpret its meaning in the first instance.

We begin our statutory interpretation with the text of § 1498. See *BedRoc Ltd. v. United States*, 541 U.S. 176, 183 (2004). Because § 1498 does not define “manufactured,” we interpret the term in accordance with its “ordinary, contemporary, common meaning.” *Sandifer v. U.S. Steel Corp.*, 134 S. Ct. 870, 876 (2014) (internal quotation marks and citation omitted). Congress enacted the “precursor to . . . § 1498” in 1910, *Zoltek*, 672 F.3d at 1315; see Act of June 25, 1910, Pub. L. No. 61-305, 36 Stat. 851, 851–52, and amended the statute to include the “manufactured” language in 1918, *Zoltek*, 672 F.3d at 1316; see Act of July 1, 1918, Pub. L. No. 65-182, 40 Stat. 704, 705 (codified in relevant part in 28 U.S.C. § 1498(a) in 1949). In 1918, the definition of “manufacture” included “[t]o make (wares or other products) by hand, by machinery, or by other agency” and “[t]o work, as raw or partly wrought materials, into suitable forms for use.” *Manufacture*, Webster’s Int’l Dictionary of the English Language (1st ed. 1907); see *Manufacture*, A New English Dictionary on Historical Principles (1908) (later compiled in the Oxford English Dictionary (1st ed. 1933)) (defining “manufacture” to include “[t]o work up (material) into forms suitable for use”). The plain meaning of “manufac-

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<sup>6</sup> Although we discussed the phrase “used or manufactured” in § 1498 in *Zoltek Corp. v. United States*, our holding was limited to the meaning of “use.” See 672 F.3d 1309, 1318 (Fed. Cir. 2012) (en banc in relevant part).



tured” in § 1498 encompasses products “ma[d]e” or “work[ed]” into a form that is “suitable for use.”<sup>7</sup>

We next consider § 1498 in the context of the overall statutory scheme. *See Davis v. Mich. Dep’t of Treasury*, 489 U.S. 803, 809 (1989). Interpreting “manufactured” to require that the product be “suitable for use” comports with our prior interpretation of “use” in § 1498. In *Zoltek*, we analogized § 1498’s “used or manufactured” language to the terms “make” and “use” in the Patent Act of 1870, 41st Cong. § 22, 16 Stat. 198, 201. *See* 672 F.3d at 1318. We stated that “[t]he Supreme Court has explained that ‘make’ and ‘use’ were not ‘technical terms’” and that “‘make embraces the construction of the thing invented and the right to use is a comprehensive term and embraces within its meaning the right to put into service any given invention.’” *Id.* (quoting *Bauer & Cie v. O’Donnell*, 229 U.S. 1, 10, 10–11 (1913) (alterations omitted) (discussing the terms’ use in the Patent Act)). We then held that, with respect to the language of § 1498, “to ‘use’ an invention, each limitation of the claims must be present in the accused product or process.” *Id.* Because “make” was synonymous with “manufacture” in 1918, *see, e.g., Manufacture*, Webster’s Int’l Dictionary of the English Language (1st ed. 1907), and encompasses “the construction of the thing invented,” and “use” requires that “each limitation of the claims must be present,” *Zoltek*, 672 F.3d

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<sup>7</sup> We further note that this definition is consistent with the Supreme Court’s interpretation of “manufacture” as used in 35 U.S.C. § 289 (2012). *See Samsung Elecs. Co. v. Apple Inc.*, 137 S. Ct. 429, 435 (2016) (“[M]anufacture’ means ‘the conversion of raw materials by the hand, or by machinery, into articles *suitable for the use* of man’ and ‘the articles so made.’” (emphasis added) (quoting J. Stormonth, *A Dictionary of the English Language* 589 (1885))).

at 1318 (emphases added) (internal quotation marks and citation omitted), we conclude that “manufactured” requires that “each limitation” “of the thing invented” be present, rendering the invention suitable for use, *see id.* at 1319 (holding that “used or manufactured by or for the United States[]’ mean[s] each limitation is present in the accused product or process”). Therefore, our prior interpretation of “use” further supports our interpretation of “manufactured” under § 1498.

The legislative history informs our interpretation of § 1498. *See Thunder Basin Coal Co. v. Reich*, 510 U.S. 200, 207 (1994). Congress added “manufacture” to § 1498’s predecessor after government contractors were found liable for patent infringement when producing warships in accordance with the Navy’s “comprehensively detailed’ specifications” during World War I. *Zoltek*, 672 F.3d at 1315. This prompted a “swift” reaction from Acting Secretary of the Navy Franklin D. Roosevelt, who wrote to the Senate Committee of Naval Affairs to explain the “difficult situation” where contractors that manufacture patented articles for the Government “are exposed to expensive litigation” and “are reluctant to take contracts.” *Id.* at 1315, 1316. He thus proposed revisions to § 1498’s predecessor. *Id.* at 1316. “In response to this letter,” Congress amended § 1498’s predecessor to provide compensation for contractors that “manufacture” patented articles for the Government. *Id.*; *see* Act of July 1, 1918, 40 Stat. at 705. Although the legislative history does not directly speak to the meaning of “manufacture” in § 1498, it indicates Congressional intent to protect government contract awardees, such as Lockheed Martin and Gibbs & Cox here, from infringement claims from patent holders, such as FastShip. *Cf. Astornet*, 802 F.3d at 1277.

Rather than interpreting the text of § 1498, the Court of Federal Claims and the parties look to three cases to guide their interpretation of “manufactured.” *See FastShip II*, 122 Fed. Cl. at 80–82; *see, e.g.*, Appellant’s

Br. 54–55; Cross-Appellant’s Br. 62–67. However, as explained below, these cases do not control our interpretation of “manufactured” in this case.

First, in *Deepsouth Packing Co. v. Laitram Corp.*, the patent owner invoked 35 U.S.C. § 271(a)<sup>8</sup> to enforce its U.S. patents and enjoin the petitioner from exporting its products “in less than fully assembled form[] for use abroad.” 406 U.S. 518, 519 (1972), *superseded in part by statute*, Patent Law Amendments Act of 1984, § 101, Pub. L. No. 98-622, 98 Stat. 3383, 3383 (codified at 35 U.S.C. § 271(f)), *as recognized in Microsoft Corp. v. AT&T Corp.*, 550 U.S. 437, 457–58 (2007). The Supreme Court held that, “in order to secure the injunction it seeks, [the patent owner] must show a § 271(a) direct infringement by [the alleged infringer] in the United States, that is, that [the alleged infringer] ‘makes,’ ‘uses,’ or ‘sells’ the patented product within the bounds of this country.” *Id.* at 527. In determining that the less-than-fully assembled products did not infringe the patents, the Supreme Court considered the “question of manufacture” when interpreting “makes,” “uses,” and “sells” in § 271(a) and explained that it “c[ould] not endorse the view that the substantial manufacture of the constituent parts of a machine constitutes direct infringement when we have so often held that a combination patent protects only against the *operable assembly of the whole* and not the manufacture of its parts.” *Id.* at 528 (emphasis added) (internal quotation marks and parentheses omitted). However, because *Deepsouth* interpreted a different word in a different

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<sup>8</sup> Section 271(a) states that, “[e]xcept as otherwise provided in this title, whoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefor, infringes the patent.”

statute, *Deepsouth* is not controlling here. See *T-Mobile S., LLC v. City of Roswell*, 135 S. Ct. 808, 817 n.5 (2015) (“[W]hile it is true that a word used across ‘the same act’ should be given the same meaning, the . . . evidence is less persuasive [when] it arises out of entirely different ‘acts’ and does not involve any term of art.” (citation omitted)); see also *Zoltek*, 672 F.3d at 1317 (faulting the panel for finding “liability under . . . § 271(a) to be a predicate to [G]overnment liability under § 1498” because it, inter alia, “was contrary to the plain language of § 1498” and “impermissibly rendered [a] subsection . . . of § 1498 inoperative”), 1319 (“Section 1498 makes no reference to direct infringement as it is defined in § 271(a).”).

Second, in *Paper Converting Machine Co. v. Magna-Graphics Corp.*, we considered the meaning of “make” and “use” in § 271(a), assessing “the extent to which a competitor of a patentee can *manufacture* and test during the life of a patent a machine intended solely for post-patent use.” 745 F.2d 11, 16 (Fed. Cir. 1984). In that case, an alleged infringer engaged in a “scheme to avoid patent infringement” by conducting tests of the accused device in two independently non-infringing “stages.” *Id.* at 15. In response to the patent owner’s infringement suit, the alleged infringer asserted that “it should bear no liability whatsoever for its manufacture, sale, or delivery of the [allegedly infringing machine] because that machine was never *completed* during the life of the . . . patent.” *Id.* at 14. Although *Paper Converting* explained that “*Deepsouth* was intended to be narrowly construed as applicable only to the issue of the extraterritorial effect of the American patent law,” 745 F.2d at 17; see *id.* (stating that “the expansive language used in *Deepsouth* is not controlling in the present case”), we considered *Deepsouth*’s “operable assembly of the whole” standard and determined it “is probably something short of a full and complete assembly” and that “‘use’ includes use for the purpose of testing,” *id.* at 18, 19; see *id.* at 17. In finding that the machine in-

fringed the patent, we held that, “[w]here . . . significant, unpatented assemblies of elements are tested during the patent term, . . . testing the assemblies can be held to be in essence testing the patented combination and, hence, infringement.” *Id.* at 19–20. Moreover, “[t]hat the machine was not operated in its optimum mode is inconsequential: imperfect practice of an invention does not avoid infringement.” *Id.* at 20. However, like *Deepsouth*, *Paper Converting*’s analysis is not controlling because it interpreted § 271(a) rather than § 1498. *See T-Mobile*, 135 S. Ct. at 817 n.5; *see also Zoltek*, 672 F.3d at 1317. *Paper Converting* is distinguishable from this case. In *Paper Converting*, it was undisputed that the alleged infringer was engaged in a “scheme to avoid patent infringement,” 745 F.2d at 15; *see id.* at 19 (“It is undisputed that [the alleged infringer] intended to finesse [the patent owner] out of the sale of a machine on which [the patent owner] held a valid patent during the life of that patent.”), and the alleged infringer “built and tested a patented machine, albeit in less than preferred fashion,” and tested “an ‘operable assembly’ of the components” of the patented machine, *id.* at 19. In contrast, FastShip has raised only unproven allegations of misconduct by the Navy, and the Navy had not constructed a ship that was “suitable for use” when the Patents-in-Suit expired. *See infra* Section I.B.2.

Finally, in *Hughes Aircraft Co. v. United States*, the Court of Federal Claims addressed the “boundaries of the problem” of defining “manufactured” in § 1498 with respect to infringement of a spacecraft. 29 Fed. Cl. 197, 219 (1993). After extensively discussing *Deepsouth* and *Paper Converting*, *see id.* at 217–22, the Court of Federal Claims determined that, “[e]ven though test parts were not intended to be launched with the spacecraft, the fact remains that the spacecraft . . . had been entirely assembled to the extent feasible at the time” and that “each of the . . . spacecraft in issue was ‘manufactured’ as of the

expiration date of the patent,” *id.* at 220, 222 (footnote omitted). As a decision of the Court of Federal Claims, *Hughes Aircraft* is not binding on this court. See *Dellew Corp. v. United States*, 855 F.3d 1375, 1382 (Fed. Cir. 2017). Moreover, *Hughes Aircraft* similarly relied on past opinions’ interpretations of § 271 rather than ascertaining the plain meaning of “manufactured” in § 1498, see 29 Fed. Cl. at 217–22; see also *T-Mobile*, 135 S. Ct. at 817 n.5. Therefore, we interpret “manufactured” in § 1498 in accordance with its plain meaning, such that a product is “manufactured” when it is made to include each limitation of the thing invented and is therefore suitable for use.

## 2. LCS-3 Was Not “Manufactured” Under § 1498 when the Patents-in-Suit Expired

The undisputed facts demonstrate that LCS-3 was not “manufactured” when the Patents-in-Suit expired in May 2010. The Asserted Claims disclose a “vessel” comprising, inter alia, “at least one *waterjet* coupled to the at least one inlet for discharging water which flows from the inlet to the waterjet for propelling the vessel,” ’032 patent col. 14 ll. 15–17 (emphasis added), and the record demonstrates that “[a]ll [four] waterjets and impeller shafts were installed” in July 2010, J.A. 13541; see *FastShip II*, 122 Fed. Cl. at 77. Moreover, the vessel further comprises a “hull,” ’032 patent col. 14 l. 1, and the construction of the “hull” was not completed until the “[e]rection of the [bow m]odule . . . during August 2010,” at the earliest, J.A. 13563; see *FastShip II*, 122 Fed. Cl. at 85–86; see also Oral Arg. at 10:05–48, <http://oralarguments.cafc.uscourts.gov/default.aspx?fl=2017-2248.mp3> (conceding that the bow was not complete and that “a bow is part of a hull”). LCS-3 neither was “suitable for use” nor included “each limitation of the claims” without either of these limitations. Oral Arg. at 10:53–11:11 (acknowledging that the vessel would not float without the bow); see *FastShip II*, 122 Fed. Cl. at 85–86 (depicting photographs of the bow module on the day following the expiration of the Patents-

in-Suit and determining that “LCS-3 could not possibly float by May 18, 2010” (internal quotation marks and citation omitted). Therefore, LCS-3 was not “manufactured” under § 1498 when the Patents-in-Suit expired in May 2010.

We are unpersuaded by FastShip’s remaining counterarguments. *See* Appellant’s Br. 66–70. First, FastShip argues that “[a] material factual dispute exists as to whether the Navy deliberately attempted to avoid infringement by delaying installation of the waterjet assemblies in LCS-3, disassembling [LCS-3] waterjets and sending critical components . . . for use in LCS-1, or slowing construction of LCS-3 bow modules.” *Id.* at 67. However, “[i]n response to a summary judgment motion, . . . the plaintiff can no longer rest on . . . mere allegations, but must set forth by affidavit or other evidence specific facts, which for purposes of the summary judgment motion will be taken as true.” *Lujan v. Defs. of Wildlife*, 504 U.S. 555, 561 (1992) (internal quotation marks and citation omitted); *see* RCFC 56(a). FastShip has failed to identify an affidavit or other evidence setting forth specific facts demonstrating that the Government “deliberately attempted to avoid infringement by delaying installation of the waterjet assemblies in LCS-3.” Appellant’s Br. 67. *See generally id.* FastShip’s claims amount to nothing more than “mere allegations” that are insufficient to preclude summary judgment, *Lujan*, 504 U.S. at 561 (internal quotation marks and citation omitted), particularly in light of “[t]he presumption that [G]overnment officials act in good faith,” *Am-Pro Protective Agency, Inc. v. United States*, 281 F.3d 1234, 1239 (Fed. Cir. 2002); *see id.* (discussing “our well-established precedent that a high burden must be carried to overcome this presumption”).

Even if the Government had delayed assembly of waterjet elements in LCS-3 until months after the Patents-in-Suit expired, FastShip has not explained how

such a delay would support a finding that a patented combination had been “manufactured” during the patent term under the language of § 1498. FastShip relies on *Paper Converting*—a case that we have already ruled does not control—but *Paper Converting*’s analysis was based in part on “sale and delivery during the patent-term of a ‘completed’ machine.” 745 F.2d at 19. FastShip has presented no evidence that all of the claimed elements of LCS-3 were completed “by being ready for assembly and with no useful noninfringing purpose” by May 2010. *Id.*

Second, FastShip avers both that: “[a]nother obvious factual dispute is over the extent to which the accused product was substantially completed prior to the [Patents-in-Suit’s] expiration, ‘to the extent feasible at the time,’” Appellant’s Br. 67 (quoting *Hughes Aircraft*, 29 Fed. Cl. at 220); *see id.* at 67–68; and “[t]here are also factual disputes as to whether LCS-3 (and LCS-1) had been sufficiently tested to constitute ‘testing the patented combination and, hence, infringement,’” *id.* at 69 (first quoting *Paper Converting*, 745 F.2d at 19–20; then citing *Hughes Aircraft*, 29 Fed. Cl. at 220). However, the “to the extent feasible” and “testing the patented combination” standards are derived from cases that we rejected as inapplicable rather than from the plain language of § 1498. *See supra* Section I.B.1.<sup>9</sup>

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<sup>9</sup> We do not hold that evidence regarding feasibility and testing are *never* relevant to determining whether a product is “manufactured” under § 1498. To the extent these inquiries inform whether the product is “suitable for use” or includes “each limitation” of an invention, courts may consider them. However, we need not consider this evidence here because it is clear that LCS-3 was not “manufactured” under § 1498 based on the plain language alone.



Third, FastShip contends that “clear factual disputes remain over the extent to which the relevant portions of LCS-3 had been completed prior to the expiration of the [Patents-in-Suit].” Appellant’s Br. 68; *see id.* (discussing the semi-planing monohull, “including the modules containing its hook and propulsion system, drive trains, gear boxes, and waterjet inlets”). However, our conclusion that, at minimum, the “waterjet” and “hull” limitations had not been completed prior to the Patents-in-Suit’s expiration is unaltered by the fact that other portions of LCS-3 had been completed, which is sufficient for a grant of summary judgment of non-infringement as to LCS-3. *Cf. Zoltek*, 672 F.3d at 1318.

## II. The Government’s Cross-Appeal on Infringement by LCS-1

### A. Standard of Review

“We review the legal conclusions of the [Court of Federal Claims] *de novo* and its findings of fact for clear error.” *Securiforce Int’l Am., LLC v. United States*, 879 F.3d 1354, 1359 (Fed. Cir. 2018) (citation omitted). “The ultimate interpretation of a claim term, as well as interpretations of evidence intrinsic to the patent (the patent claims and specifications, along with the patent’s prosecution history), are legal conclusions, which this court reviews *de novo*.” *Liberty Ammunition*, 835 F.3d at 1395 (internal quotation marks and citation omitted). “Subsidiary factual determinations based on extrinsic evidence are reviewed for clear error.” *Id.* (internal quotation marks and citation omitted).

### B. The Court of Federal Claims Properly Determined that LCS-1 Infringes the Asserted Claims

In *FastShip I*, the Court of Federal Claims construed the “increases the efficiency of the hull” limitation to mean “allows achievement of speed through application of less power than would be required for comparable or even

lower speeds with a conventional displacement hull.” 114 Fed. Cl. at 511. In *FastShip III*, the Court of Federal Claims reiterated its prior claim construction and evaluated whether LCS-1 satisfies this limitation by comparing graphs depicting the Patents-in-Suit’s and LCS-1’s power to speed ratios. 131 Fed. Cl. at 617–18. In making this comparison, the Court of Federal Claims “convert[ed] the LCS-1 shaft power measurements to metric units (kilowatts) to conform to the metric units used on the power-speed graph in the ’032 patent.” *Id.* at 617; *see* ’032 patent fig.11 (depicting the Patents-in-Suit’s shaft power); J.A. 4479 (depicting LCS-1’s shaft power).

On appeal, the Government’s primary contention is that, although the Court of Federal Claims’ “construction ruling of ‘increases efficiency of the hull’ was correct, . . . the [C]ourt [of Federal Claims] later erred when it accepted improper extrinsic evidence to modify its original construction.” Cross-Appellant’s Br. 41; *see id.* at 41–60. In the alternative, the Government avers that, “[e]ven if the [Court of Federal Claims]’ acceptance of the ‘metric system’ construction of Figure 11 is characterized as a factual finding subject to a clear error standard of review, that finding should be reversed as clear error.” *Id.* at 59. We disagree with the Government.

The Court of Federal Claims did not alter its claim construction in *FastShip III*. The Court of Federal Claims explicitly applied its construction from *FastShip I*, *see FastShip III*, 131 Fed. Cl. at 617, as the Government ultimately appears to concede, *see* Cross-Appellant’s Reply Br. 23 (stating that, in *FastShip III*, “the [C]ourt [of Federal Claims] confirmed that it was *applying* the construction of ‘increases efficiency’ from its earlier claim construction ruling” (emphasis added)). Before assessing whether LCS-1 infringed the Asserted Claims by comparing graphs depicting the efficiency of the inventions of the Patents-in-Suit and LCS-1, the Court of Federal Claims needed to assure itself that these graphs expressed effi-

ciency ratios in the same unit of measure. Therefore, the Court of Federal Claims “did not alter its claim construction”; it “at most clarified” that the hull efficiency found in representative claim 1 would be measured in metric units rather than imperial units. *Mformation Techs., Inc. v. Research in Motion Ltd.*, 764 F.3d 1392, 1398 (Fed. Cir. 2014); see *Cordis Corp. v. Bos. Sci. Corp.*, 658 F.3d 1347, 1356 (Fed. Cir. 2011) (explaining that the court’s “post-verdict elaboration on [its claim construction] only clarified what was inherent in the construction”).

The Court of Federal Claims also did not clearly err as a factual matter by reading Figure 11 as using metric units. In its pre-trial contentions of law and fact, the Government presented an annotated version of Figure 11. J.A. 17374. The Government argued that the “shaft horsepower” of the conventional frigate in Figure 11 was shown in imperial units and plotted horsepower for LCS-1 in imperial units on the same graph, attempting to demonstrate that “LCS-1 requires substantially more power than a conventional hull to achieve the same speeds” and, “[t]hus, this required element of the [Asserted C]laims is . . . not met by . . . LCS-1.” J.A. 17374. However, the Government did not support its arguments regarding the units in Figure 11 with any evidence. See J.A. 17374; see J.A. 17347–96. At trial, the Patents-in-Suit’s inventor testified that Figure 11 depicts “shaft horsepower in kilowatts,” J.A. 495, and the Government failed to rebut this testimony at trial. When the Government nevertheless reproduced the annotated Figure 11 in its post-trial brief, see J.A. 17558, FastShip explained that “[t]he Navy . . . fail[ed] to note that [J.A. 4479] records shaft horsepower in *imperial* units, whereas the [Patents-in-Suit] record shaft horsepower in *metric* units (kilowatts, or ‘KW’), as [the Patents-in-Suit’s inventor] pointed out on [d]ay [o]ne of the trial,” J.A. 17607 (footnote omitted). In light of this testimony, the Court of Federal Claims determined it was “correct to convert . . . LCS-1

shaft power measurements to metric units (kilowatts) to conform to the metric units used on the power-speed graph in the '032 patent.” *FastShip III*, 131 Fed. Cl. at 617.

We are not “left with the definite and firm conviction that a mistake has been committed.” *Ferreiro v. United States*, 350 F.3d 1318, 1324 (Fed. Cir. 2003) (internal quotation marks and citation omitted). FastShip supported its argument with the Patents-in-Suit’s inventor’s testimony, *see* J.A. 495, and the Court of Federal Claims was entitled to weigh the credibility of that testimony, *see Inwood Labs., Inc. v. Ives Labs., Inc.*, 456 U.S. 844, 856 (1982) (“Determining the weight and credibility of the evidence is the special province of the trier of fact.”). Moreover, the record demonstrates that “horsepower” can be measured in either imperial or metric units, *see* J.A. 3625–34 (depicting “hull effective power” in “HP” and “KW”), 4464 (depicting “Gas turbines” and “Diesels” in “hp” and “kW”), 4578–625 (depicting effective horsepower, *i.e.*, “EHP,” as both “HP” and “KW”).

In contrast, the Government failed to support its contention that Figure 11 depicts power in imperial units with any evidence before the Court of Federal Claims. The only support the Government provided was an annotated version of Figure 11, *see* J.A. 17374, 17558, but these annotations were prepared by attorneys, and “[a]ttorney argument is not evidence,” *Icon Health & Fitness, Inc. v. Strava, Inc.*, 849 F.3d 1034, 1043 (Fed. Cir. 2017). On appeal, the Government argues that: “[t]he specification contains a detailed description of a best mode embodiment of the invention with every reference to power being expressed in the [i]mperial units of ‘horsepower’ or ‘HP,’” Cross-Appellant’s Br. 55 (footnote omitted); *see* '032 patent col. 3 l. 67, col. 10 ll. 23–24, 55, col. 11 ll. 30–31, 34–35; and “Figure 11 itself only uses the term ‘shaft horsepower x 1000,’” Cross-Appellant’s Br. 55; *see* '032 patent fig.11. However, as we explained above, the

record demonstrates that horsepower can be measured in either imperial or metric units. *See* J.A. 3625–34, 4464, 4578–625.

We see no clear error in the Court of Federal Claims’ factual findings. The Government concedes that, if the Court of Federal Claims properly determined the units in Figure 11 are metric units, “then LCS-1 infringes.” Cross-Appellant’s Reply Br. 24; *see id.* (stating that “the question of whether the power units representing line B in . . . Figure 11 are imperial units or metric units is dispositive in this case”). Therefore, we affirm the Court of Federal Claims’ determination that LCS-1 infringes the Asserted Claims.

### III. Damages

#### A. Standard of Review

When reviewing damages awards by the Court of Federal Claims, “[d]ifferent standards of review are applicable to different aspects of a damages award.” *Home Savs. of Am., FSB v. United States*, 399 F.3d 1341, 1346 (Fed. Cir. 2005). Because “the amount of a prevailing party’s damages is a finding of fact,” *id.* (internal quotation marks and citation omitted), “the clear error standard governs . . . findings about the general type of damages to be awarded . . . , their appropriateness . . . , and rates used to calculate them,” *id.* at 1347.

#### B. The Court of Federal Claims Clearly Erred in Its Damages Calculation

The Court of Federal Claims determined that “a hypothetical licensing agreement between FastShip and the Navy on September 23, 2006[,] would have resulted in a payment of \$6,449,582.82, reflecting a 3% royalty on the cost of the elements of LCS-1 covered by the [Patents-in-Suit] as of the date of the license.” *FastShip III*, 131 Fed. Cl. at 627; *see id.* at 622–27. FastShip contends that the Court of Federal Claims miscalculated the total royalty

base as \$214,986,194 rather than \$237,242,394, which “might be the result of inadvertent copying.” Appellant’s Br. 48, 53. The Government agrees with FastShip, Cross-Appellant’s Br. 80, and both parties agree that the revised damages award should be \$7,117,271.82, plus interest for delay damages, *see id.*; Appellant’s Reply Br. 35; Cross-Appellant’s Reply Br. 28. Having reviewed the Court of Federal Claims’ damages award, we agree with the parties that the Court of Federal Claims clearly erred by miscalculating the total royalty base and, thus, the final damages award. Therefore, we modify the Court of Federal Claims’ damages award to \$7,117,271.82, plus interest for delay damages. *See Ajinomoto Co. v. Archer-Daniels-Midland Co.*, 228 F.3d 1338, 1351 (Fed. Cir. 2000) (modifying a damages award).

#### CONCLUSION

We have considered the parties’ remaining arguments and find them unpersuasive. We affirm the Court of Federal Claims’ grant of summary judgment of non-infringement by LCS-3 and finding of infringement by LCS-1. We modify the Court of Federal Claims’ damages calculation to \$7,117,271.82, plus interest for delay damages. Accordingly, the Judgment of the Court of Federal Claims is

#### **AFFIRMED AS MODIFIED**

#### COSTS

Each party shall bear its own costs.