UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF LOUISIANA

PENN MARITIME, INC.	**CIVIL ACTION**
VERSUS	**NO. 11-2761**
RHODES ELECTRONIC SERVICES, INC., ET AL.	**SECTION "C"(4)**

OPINION

This matter concerns the alleged malfunction of an autopilot system onboard a tug, the M/V BLUEFIN, leading to a collision between the BLUEFIN's barge, PENN 80, and another barge, the OSG 400, in the Delaware River on November 5, 2010. The claims and defenses in this matter were tried to the Court with no jury on May 19 and 20, 2014. Having considered the testimony of the witnesses and all of the evidence, the Court determines that plaintiff Penn Maritime, Inc. (hereinafter "Penn") has failed to meet its burden of proof that this incident was caused by any defect in the BLUEFIN's autopilot. As explained below, it is at least equally probable that this accident was caused by the failure of Penn's captain to properly operate the autopilot. Accordingly, the Court awards judgment in favor of defendant Rhodes Electronic Services Inc. (hereinafter "Rhodes") on Penn's main demand and in favor of third-party defendants, Thoma-Sea Marine Constructors, LLC and Thomassie Properties LLC, f/k/a Thoma-Sea Shipbuilders LLC (hereinafter "Thoma-Sea") on Rhodes's maritime interpleader.

STATEMENT OF FACTS

The M/V BLUEFIN is an Articulated Tug Barge (ATB) owned and operated by Penn.[1] As an ATB, the BLUEFIN can either push or pull a barge.[2] In push-mode, it connects to the rear end

[1] (Trial Tr. vol. 1, 18:14-19, May 19, 2014.)

[2] (*Id.* at 19:25-20:1.)

of a barge via retractable pins in its bow.[3]

Penn contracted with Thoma-Sea to build the BLUEFIN.[4] A company named Engine Motor, Inc. (hereinafter "EMI") installed the vessel's basic steering system.[5] The EMI steering system includes, among other things, a lever for hand steering, and a console to switch between hand steering and autopilot, assuming that an autopilot system is installed.[6] The EMI system is not equipped with its own autopilot.

Penn hired Rhodes to install the BLUEFIN's remaining electronic navigation equipment, including a Simrad AP50 Plus Autopilot system, which Rhodes did after EMI had already installed the steering.[7] The initial installation was performed by multiple technicians from Rhodes, including Branden Rhodes.[8] After the installation, Rhodes performed a full "dockside setup," giving the autopilot some basic information about the vessel, such as length, and the preferred settings for operation.[9] Rhodes personnel also instructed the Penn crew in the basic use of the autopilot.[10]

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[3] (*Id.* at 18:14-19, 19:9-16.)

[4] (*See* Ex. 37.)

[5] (Trial Tr. vol. 1, 117:22-118-4; Ex. 9.)

[6] (*See* Ex. 20.) The EMI console features at least two different kinds of hand steering. There is a full-follow-up (FFU) lever that controls the rudder angle directly. (Ex. 9-000014.) There is also a non-follow-up (NFU) joystick that does the same but only for as long as the pilot is pressing it in one direction or another. (Ex. 9-000013.) The joystick is spring loaded to return to the center position. (*Id.*) In the context of this opinion, unless otherwise noted, "hand steering" refers to changing the rudder angle using the FFU lever on the EMI console.

[7] (Trial Tr. vol. 1, 23:13-21, 358:24-359:2.)

[8] (*Id.* at 23:9-11; Trial Tr. vol. 2, 358:13-15, May 20, 2014.)

[9] (*Id.* at 363:3-11.)

[10] (*Id.* at 327:10-22, 338:2-20.)

At the end of July 2010, the BLUEFIN participated in sea trials to test its critical equipment in realistic operating conditions.[11] The sea trials were conducted without the barge PENN 80, which was also a recent construction.[12] By all accounts, the autopilot functioned well during sea trials.[13] However, the crew reported that hand steering was slightly misaligned to the starboard side of the vessel.[14] EMI corrected this issue to the Penn's satisfaction.[15] Around this time, Captain Thornton also complained that the BLUEFIN had a high level of critical vibration relative to his previous vessel.[16] Penn did not opt to have this issue looked into or repaired.[17] Penn took delivery of the BLUEFIN after sea trials, certifying that all systems on board were in working order.[18]

From September 4 to 6, 2010, the BLUEFIN took its maiden voyage with the PENN 80 from New Orleans, Louisiana to Mobile, Alabama.[19] En route, Penn's crew experienced a technical difficulty with the operation of the autopilot. The crew members differed in their explanations of the problem. Captain Thornton testified that the BLUEFIN would not hold its course from the very beginning of the voyage and navigated in a series of "S" loops, even before it took on any cargo.[20]

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[11] (Trial Tr. vol. 1, 24:8-17; Trial Tr. vol. 2, 326:18-24.)

[12] (*See* Trial Tr. vol. 1, 46:1-4.)

[13] (Trial Tr. vol. 1, 119:4-22; Trial Tr. vol. 2, 370:25-371:1; Ex. 37-000141.)

[14] (Trial Tr. vol. 2, 342:18-22.)

[15] (*Id.*; Ex. 21-000001, 37-000145.)

[16] (Trial Tr. vol. 2, 334:11-336:6.)

[17] (*Id.* at 348:18-20.)

[18] (*Id.* at 371:2-4; *see* Exs. 37-000140 to 37-000145.)

[19] (Trial Tr. vol. 2, 328:8-13.)

[20] (*Id.* at 328:8-329:23.)

Mate Washburn testified that the autopilot struggled to maintain course, but only *after* the barge was laden with cargo and, specifically, loaded down at its head.[21] Whatever the issue, Captain Thornton attempted to change settings on the autopilot in response using the installation manual.[22] The end result was that the autopilot had an error message and would not function at all.[23] Captain Thornton hand steered the BLUEFIN through the rest of the maiden voyage, and reported "problems" with the autopilot to Penn's representative, Dan Duplantis.[24] He also reported that the BLUEFIN had regained the "starboard draw" in hand steering that it had during sea trials.[25]

Duplantis called EMI to fix the hand-steering issue.[26] On September 15, 2010, Branden Rhodes came on board the BLUEFIN for the express and limited purpose of correcting the error message on the autopilot.[27] He changed the autopilot's drive setting from solenoid to analog.[28] He also recalibrated the analog drives.[29] The analog drives in the autopilot control the rudders through the main steering system using electrical voltage.[30] The drives have to be calibrated in order to set

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[21] (Trial Tr. vol. 1, 206:24-207:7.)

[22] (Trial Tr. vol. 1, 329:24-331:8.)

[23] (*Id.* at 371:16-19.)

[24] (*Id.* at 332:6-19; Ex. 21-000001.)

[25] (*Id.*; Trial Tr. vol. 2, 342:22-25.)

[26] (*Id.* at 342:5-8.)

[27] (*Id.* at 371:16-19; Ex. 30-000001.)

[28] (Trial Tr. vol. 2, 373:1-374:20.) The AP50 Plus unit installed on the BLUEFIN did not have the hardware needed to operate in solenoid mode; the solenoid drive setting was causing the console to give an error message. (*Id.* at 372:19-25.)

[29] (*Id.* at 374:21-375:12.)

[30] (Burke Dep. 19:20-20:6, 46:14-47:7, March 26, 2014.)

an amount of rudder movement for a particular voltage.[31] Branden Rhodes had no recollection of altering any other settings, like vessel length, trim mode, and sea state.[32] He did not inspect the junction boxes below the bridge where the autopilot was wired into the rest of the steering and navigation equipment.[33]

Following this repair, the BLUEFIN re-entered the Rhodes fleet under the command of Captain Eric Edvardsen.[34] Captain Edvardsen had been present for the installation of the steering and navigation systems and the sea trials.[35] He had some familiarity with the autopilot system from his previous experience with a similar model onboard his previous vessel.[36] According to the deck logs, Captain Edvardsen had command of the BLUEFIN from September 15, 2010 when Rhodes did its reconfiguration of the autopilot until October 7, 2010.[37] During that time he used the autopilot without incident.[38] On October 7, Captain Thornton relieved Captain Edvardsen.[39] During his 21 days on the vessel, he also operated the autopilot without incident.[40]

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[31] (*Id.*)

[32] (Trial Tr. vol. 2, 396:8-13.)

[33] (*Id.* at 395:20-396:7.)

[34] (Ex. 3-000017.)

[35] (Trial Tr. vol. 1, 22:22-25, 24:8-19.)

[36] (*Id.* at 46:13-47:20.)

[37] (*Id.* at 28:7-9; Ex. 3-000017.)

[38] (Trial Tr. vol. 1, 212:16-213:12.)

[39] (Trial Tr. vol. 2, 344:20-23; Ex. 3-000040.)

[40] (Trial Tr. vol. 2, 339:2-7, 344:24-345:4.)

Captain Edvardsen rejoined the BLUEFIN on October 27, 2010 in Houston, Texas.[41] The BLUEFIN was preparing to tug a full load of No. 6 fuel oil in the PENN 80 barge from Houston to Paulsboro, New Jersey.[42] During this trip, and prior to the events at issue in this case, he operated the autopilot numerous times without any problem.[43]

On November 5, 2010, when the BLUEFIN reached the Delaware River, Captain Edvardsen went to relieve the mate on watch, Mate Washburn, who did not have Delaware River pilotage approval.[44] In order to obtain that approval, Mate Washburn needed 12 supervised round trips on the Delaware.[45] Thus, Mate Washburn remained in the bridge to observe Captain Edvardsen after he was relieved.[46]

For navigation purposes, the Delaware River is divided into various ranges, beginning with Brandywine.[47] Captain Edvardsen navigated the first four of these ranges on autopilot without changing to hand steering, making slight changes to the BLUEFIN's heading using the autopilot's course adjustment knob.[48] He planned to change to hand steering to make a significant turn between

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[41] (Trial Tr. vol. 1, 45:16-22.)

[42] (Trial Tr. vol. 1, 50:5-19; Ex. 3-000061.)

[43] (Trial Tr. vol. 1, 50:20-24.)

[44] (*Id.* at 51:5-25, 197:5-6.)

[45] (*Id.* at 197:7-10.)

[46] (*Id.* at 53:1-3.)

[47] (*Id.* at 56:7-12.)

[48] (*Id.* at 63:25-64:21.)

the fourth and fifth ranges – Liston and Baker, respectively.[49] Just before the turn, the Captain saw an oncoming vessel, the OSG CONSTITUTION, on the opposite side of the channel.[50] The CONSTITUTION was tugging a barge of its own, the OSG 400.[51] Both the BLUEFIN and the CONSTITUTION were traveling at roughly 10 knots.[52]

At the turn, Captain Edvardsen changed over to hand steering as planned, with Mate Washburn watching from behind.[53] In the Liston Range, the BLUEFIN had been tracking a 317 degree heading.[54] Captain Edvardsen made the turn and then brought the BLUEFIN to a 359 degree heading to bring it to the right side of the channel.[55] He steadied up the vessel, making sure that the heading on the gyrocompass matched the heading on the autopilot console.[56] Then, Captain Edvardsen restored control of the vessel to the autopilot.[57] The BLUEFIN immediately "sheered;" its rudders went "hard over" or as far as they could go, causing the vessel to turn as sharply as possible to port.[58] By the time Captain Edvardsen and Mate Washburn realized what had happened, the BLUEFIN had already crossed the channel on a collision course with the CONSTITUTION and

[49] (*Id.* at 58:25-59:8, 66:4-15.)

[50] (*Id.* at 80:8-15.)

[51] (*Id.* at 81:22-82:16.)

[52] (*Id.* at 82:24-83:3.)

[53] (*Id.* at 66:4-15.)

[54] (*Id.* at 174:17-21.)

[55] (*Id.* at 74:4.)

[56] (*Id.* at 77:7-18.)

[57] (*Id.* at 78:15-17.)

[58] (*Id.* at 78:20-24.)

its barge.[59] Captain Edvardsen stopped the engines and tried to hand steer to avoid the collision.[60] The BLUEFIN eventually stopped but not before the PENN 80 dealt a glancing blow to the OSG 400.[61] Fortunately for all, no oil spilled.[62]

After the collision, Captain Edvardsen radioed the Coast Guard, who told him to go to the nearest anchorage, an artificial island in the Delaware.[63] The Coast Guard tested the Captain and Mate Washburn for drugs and alcohol.[64] The results were negative.[65] Afterward, the Coast Guard asked the Captain to replicate the sequence that resulted in the accident.[66] Captain Edvardsen did so, transferring from hand steering to autopilot as he had done after his turn, and just as in the accident, the rudders went hard over to port.[67] He repeated this process twice more for the Coast Guard, and twice more, the rudders went hard over to port.[68]

The following day, on November 6, 2010, Captain Edvardsen repeated the process for an inspector from the American Bureau of Shipping, while the BLUEFIN was docked at a terminal in

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[59] (*Id.* at 87:12-15.)

[60] (*Id.*)

[61] (*Id.* at 87:22-88:20.)

[62] (*Id.* at 88:23-89:1.)

[63] (*Id.* at 90:7-14.)

[64] (*Id.* at 95:19-96:4.)

[65] (*Id.*)

[66] (*Id.* at 95:23-24.)

[67] (*Id.* at 96:18-25.)

[68] (*Id.* at 98:9-99:3.)

the Port of Wilmington, with the same results.[69] Later that day, Penn telephoned Tom Pisciotta, a local Simrad-certified dealer and repairman, to repair the autopilot.[70] Pisciotta came immediately.[71] He went with Captain Edvardsen to the bridge where the Captain explained that the BLUEFIN was inexplicably sheering.[72] Pisciotta then attempted to test this issue by switching from hand steering to autopilot and observing the reaction of the rudders.[73] He performed this test multiple times, each time allowing the autopilot heading to match the gyrocompass before engaging the autopilot.[74] Each time, instead of remaining at midships, the rudders went over to port by between 8 and 10 degrees.[75] On one occasion, the rudders went slightly to port when Pisciotta attempted to make a starboard turn using the autopilot controls.[76] At no point was he able to get the boat to sheer as it did during the accident.[77]

Believing that there was a malfunction, Pisciotta went below the bridge to examine the junction boxes that contain the wiring and circuitry for the autopilot.[78] He found that some of the

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[69] (*Id.* at 99:12-25.)

[70] (*Id.* at 256:21-257:23.)

[71] (*Id.* at 257:20-21.)

[72] (*Id.* at 258:3-14.)

[73] (*Id.* at 258:15-23.)

[74] (*Id.*)

[75] (*Id.* at 259:2-12.)

[76] (*Id.* at 259:9-17.)

[77] (*Id.* at 279:3-11.)

[78] (*Id.* at 263:9-22.)

screws that hold the wiring in place were loose.[79] He also found that a spare cable was pressing against the center of an analog board.[80] Pisciotta tightened the screws from between three-quarters and one full turn and removed the spare cable.[81]

Next, Pisciotta went back to the bridge and changed certain settings on the autopilot console.[82] He changed the vessel length to accommodate the BLUEFIN and PENN 80 barge together, whereas it had previously been set to a length that would only accommodate the BLUEFIN alone.[83] He turned off the Auto Sea State and Auto Trim settings.[84] He recalibrated the rudder end points, which had been set well below manufacturer recommendations.[85] Finally, Pisciotta changed the rudder zero point to zero from around 8 degrees.[86] After all of these changes, the autopilot performed normally.[87]

PROCEDURAL HISTORY

Penn brought suit against Rhodes in November 2011 for negligent installation and maintenance of the Simrad AP50 Plus autopilot, breach of contract and warranty, and products

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[79] (*Id.* at 264:13-17.)

[80] (*Id.* at 265:15-22.)

[81] (*Id.* at 269:23-270:5.)

[82] (*Id.* at 270:17-24.)

[83] (*Id.* at 272:6-273:4.)

[84] (*Id.* at 274:4-15.)

[85] (*Id.* at 275:3-25.)

[86] (*Id.* at 276:1-277:7.)

[87] (*Id.* at 277:14-21.)

liability.[88] Penn simultaneously sued Navico, the autopilot's manufacturer, for products liability and breach of contract and warranty.[89]

On February 24, 2011, Penn amended its complaint to add the owners and operators of the OSG CONSTITUTION and the OSG 400 as defendants, alleging that negligence in the operation of those vessels had caused the accident.[90] In June 2012, Penn filed a second amended complaint to substitute the OSG CONSTITUTION/OSG 400 defendants.[91] In answer to this second amended complaint, Rhodes filed a third-party complaint against Thoma-Sea under Fed. R. Civ. P. 14(c), alleging that excessive vibrations inherent in the BLUEFIN's construction were responsible for the autopilot malfunctioning at the time of the accident.[92] Following notice of bankruptcy, Penn voluntarily dismissed all allegations of fault pertaining to the owners of the OSG CONSTITUTION and OSG 400.[93]

Navico obtained summary judgment on all claims against it in April 2014.[94] The Court entered partial final judgment as to Navico, as well as other entities, by agreement of the parties, in a judgment dated May 1, 2014.[95] Penn's claims of negligence, breach of contract/warranty, and

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[88] (Rec. Doc. 1.)

[89] (*Id.*)

[90] (Rec. Doc. 24.)

[91] (Rec. Docs. 48, 67.)

[92] (Rec. Doc. 116.)

[93] (Rec. Docs. 100, 121.)

[94] (Rec. Doc. 167.)

[95] (Rec. Doc. 170.)

products liability against Rhodes and Rhodes's interpleader against Thoma-Sea were tried to the Court on May 19 and 20, 2014 and taken under submission thereafter.[96]

LAW & ANALYSIS

Penn has raised three claims against Rhodes: negligence, breach of implied warranty of workmanlike performance (WWLP), and products liability.[97] Penn claims that Rhodes committed negligence and breached the WWLP by improperly installing and setting up the Simrad AP50 Plus autopilot system on the BLUEFIN in July and August 2010 and/or failing to make proper repairs on September 15, 2010 when a malfunction was reported to them. They cite the specific issues noted and changed by Tom Pisciotta when he serviced the autopilot on November 6, 2010: (1) a spare cable pressing on analog motherboard in the JD53; (2) loose wire screws in the JD53; (3) Auto Sea State improperly engaged; (4) Auto Trim State improperly engaged; (5) improperly set boat length; and (6) improperly calibrated rudder end points and zero point.

I. Ordinary Negligence and Breach of WWLP

A. Legal Standards

"To establish maritime negligence, a plaintiff must 'demonstrate that there was a duty owed by the defendant to the plaintiff, breach of that duty, injury sustained by [the] plaintiff, and a causal connection between the defendant's conduct and the plaintiff's injury.'"[98] "Whether a defendant

[96] (Rec. Docs. 198, 199.)

[97] (Rec. Doc. 169 at 25-26.)

[98] *Canal Barge Co., Inc. v. Torco Oil Co.*, 220 F.3d 370, 376 (5th Cir. 2000) (*citing In re Cooper/T. Smith*, 929 F.2d 1073, 1077 (5th Cir.1991)).

owes a plaintiff a legal duty is a question of law."[99] A duty is owed only with respect to an interest that is foreseeably jeopardized by an act or omission.[100] A harm is not foreseeable unless it "might have been anticipated by a reasonably probable result of the act or omission . . . ."[101] A marine service contractor has a duty to exercise reasonable skill and care commensurate with the knowledge normally possessed by members of his profession.[102]

"Those who repair a vessel or the equipment aboard it make a warranty, the implied warranty of workmanlike performance."[103] To have a cause of action for breach of implied warranty of workmanlike performance, a shipowner must show that the contractor breached the warranty and that this proximately caused the shipowner's injury.[104]

The implied warranty of workmanlike performance is breached where a contractor fails to perform his obligation properly and safely.[105] However, where the defendant properly performs the

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[99] *Id.* (quoting *Florida Fuels, Inc. v. Citgo Petroleum Corp.*, 6 F.3d 330, 333 (5th Cir.1993)).

[100] *In re Great Lakes Dredge & Dock Co. LLC*, 624 F.3d 201, 211 (5th Cir. 2010).

[101] *Id.* at 211-212

[102] *Todd Shipyards Corp. v. Turbine Serv., Inc.*, 467 F. Supp. 1257, 1288 (E.D. La. 1978) *aff'd in part, modified in part and rev'd in part*, 674 F.2d 401 (5th Cir. 1982) (citing Restatement (Second) of Torts § 299A (1965)).

[103] *Houston-New Orleans, Inc. v. Page Eng'g Co.*, 353 F. Supp. 890, 898 (E.D. La. 1972).

[104] *Butterfly Transp. Corp. v. Bertucci Indus. Servs. LLC*, 351 F. App'x 855, 858 (5th Cir. 2009) (quoting *Parfait v. Jahncke Serv., Inc.*, 484 F.2d 296, 302 (5th Cir.1973)).

[105] *Id.*

"essence" or "inescapable elements" of a contract, no cause of action for implied breach will lie.[106] In practice, this standard need not differ from the test for ordinary maritime negligence.[107] An obligor generally complies with the WWLP when he uses reasonable care in the performance of the obligation.[108] The requirements of causation and foreseeability still apply to claims under the WWLP.[109]

Penn has the burden of proof on all of its claims by a preponderance of the evidence.[110] "A preponderance of the evidence simply means evidence that persuades [the Court] that the plaintiff's claim is more likely true than not true."[111] Circumstantial evidence may help the plaintiff meet this burden.[112] However, where only circumstances are relied upon, they must permit a strong inference on the required elements of plaintiff's claim.[113] In other words, the circumstances must exclude other reasonable hypotheses with a fair degree of certainty, showing that the defendant's liability for

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[106] *Id.* (quoting *Ryan Stevedoring Co. v. Pan-Atlantic Steamship Corp.*, 350 U.S. 124, 133, 76 S.Ct. 232, 100 L.Ed. 133 (1956)).

[107] *Id.* at n.10.

[108] *See B & B Schiffahrts GmbH & Co. v. Am. Diesel & Ship Repairs, Inc.*, 136 F. Supp. 2d 590, 597 (E.D. La. 2001) ("'The obligor in a service contract has a duty to perform his or her task with reasonable care, skill, and diligence.'") (quoting *Caribbean Bulk Carriers, Ltd. v. Motor-Services Hugo Stamp, Inc*., 1996 WL 210716, *3 (E.D. La. Apr. 26, 1996); citing 1 T. Schoenbaum, Admiralty and the General Maritime Law § 508 at 190 (2d ed.1994)).

[109] *Parfait v. Jahncke Serv. Inc.*, 484 F.2d 296, 302 (5th Cir. 1973).

[110] *Offshore Specialty Fabricators, LLC v. Dumas Int'l, Inc.*, 982 F. Supp. 2d 695, 700 (E.D. La. 2013).

[111] *Id.*

[112] *Id.*

[113] *Id.* (citing *Marquette Transp. Co., Inc. v. La. Machinery Co., Inc.*, 367 F.3d 398, 404 (5th Cir. 2004)).

negligence is more likely than not.[114] In marine repair or servicing cases, the identity of the party in control or possession of the vessel at the time of the incident is a factor to consider when determining whether circumstantial evidence of negligence or causation is sufficient.[115]

B. Analysis

1. Penn has not proven Rhodes's responsibility for the allegedly "improper" autopilot console settings identified on November 6.

As an initial matter, Penn has alleged that this accident was caused by a number of settings (analog drive calibrations, Auto Sea State, Auto Trim, and vessel length), that had to be set on the autopilot console in the bridge. Penn has not proven that Rhodes is even responsible for putting all of these settings into place.

Rhodes was responsible for the initial dockside setup of the device.[116] However, Captain Thornton made changes of uncertain scope during the maiden voyage, in an attempt to correct the autopilot's failure to hold course.[117] The only change that is certain is Captain Thornton's selection of the solenoid drive setting which made the autopilot inoperable.[118] When Branden Rhodes was called to fix this problem, he had little reason to tamper with Auto Trim, Auto Sea State, and vessel length.

On the other hand, because he was restoring the analog drive system, Rhodes had to

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[114] *Houston-New Orleans, Inc.*, 353 F. Supp. at 896.

[115] *Offshore Specialty Fabricators, LLC*, 982 F. Supp. 2d at 700 (citing *Fairest–Knight v. Marine World Distributors, Inc.*, 652 F.3d 94, 101 (1st Cir. 2011)).

[116] (Trial Tr. vol. 2, 363:3-11.)

[117] (Trial Tr. vol. 1, 345:13-19.)

[118] (Trial Tr. vol. 2, 373:1-374:20.)

recalibrate the rudder feedback settings, i.e., the zero and end points.[119] On November 6, Tom Pisciotta found the rudder end points calibrated to 20 degrees.[120] However, this accident occurred when the rudders went at least *40* degrees to port.[121] Unlike the "rudder limit," which only operates in certain modes, the rudder end points are akin to physical stops that the autopilot honors in all circumstances.[122] Therefore, if the end points were set to 20 degrees at the time of the accident, the autopilot should have treated 20 degrees as the hard over position; it should have been unable to call for 40 or more degrees to port.

The Court understands that Penn is claiming that loose terminal screws caused the autopilot to behave erratically in any number of ways expedient to this lawsuit. However, there is no actual support for this in the record. On the other hand, someone in Penn's crew could have easily changed this setting and others before Pisciotta's inspection, in an effort to troubleshoot the problem. Indeed, this, and only this, would help explain why the analog drive calibrations that Pisciotta identified did not affect the autopilot's operation before November 6. Rhodes need not establish that Penn actually changed these settings by a preponderance of the evidence in order to defeat liability. Because the case against Rhodes is circumstantial, Penn has the burden to rule out this alternative explanation with a fair degree of certainty, taking into account factors like control of the vessel.[123] Here, Penn

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[119] (Ex. 15-000063)

[120] (Trial Tr. vol. 1, 270:18-24.)

[121] (*Id.* at 85:20-23.)

[122] The end point is the rudder position for maximum analog drive voltage. (Ex. 15-000063, 15-000067.)

[123] *Offshore Specialty Fabricators, LLC*, 982 F. Supp. 2d at 700 (citing *Fairest–Knight v. Marine World Distributors, Inc.*, 652 F.3d 94, 101 (1st Cir. 2011)).

had "exclusive control" of the autopilot console from the time the vessel was serviced on September 15, 2010 until the accident.[124] Against this backdrop, even if Penn could prove some causal link between the console settings and this accident, the Court would not find Rhodes liable.[125]

2. Penn has not proven that any of its alleged defects caused or contributed to this accident.

In any event, the more significant issue of law and fact in this case is whether the supposed "defects" in the autopilot identified by Penn could possibly and did in fact cause the accident that took place on November 5, 2010. Having considered the evidence thoroughly, the Court finds that Penn has not met its burden on this question.

a. None of the autopilot's console settings could have caused the alleged malfunction.

None of the allegedly improper console settings has any apparent relationship to the accident in question. Auto Sea State allows the autopilot to navigate rougher conditions without calling for too much course correction.[126] When it is engaged, the autopilot calls for less rudder, not more.[127]

Auto Trim allows the autopilot to do less work to compensate for wind and current that create lateral movement.[128] Whereas a lateral draw would otherwise require the autopilot to give

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[124] *Cf. id.* at 703.

[125] The Court is further skeptical regarding whether many of these parameters were "improperly" set. For instance, Auto Trim and Auto Sea State are factory default settings that would have been appropriate to use on the BLUEFIN. (Burke Dep. 46:6-8; Trial Tr. vol. 2, 368:18-24.) As explained below, a marine installer would have no reason to think that these settings would endanger a vessel in any way. Insofar as either of these settings was problematic for the Penn crew, Rhodes was entitled to expect that the Penn crew would alter them as desired. It had no duty to learn and implement operational preferences that were never conveyed.

[126] (Trial Tr. vol. 2, 432:11-433:13.)

[127] (*Id.* at 433:17-19.)

[128] (*Id.* at 367:24-368:11.)

more rudder commands to one side or the other just to maintain course, Auto Trim adjusts either the port or starboard rudder angle to balance and minimize the number of commands to either side.[129] However, any shift in the rudder angle caused by Auto Trim is slight; thus, it does not help explain what happened here.[130]

The vessel length setting facilitates Auto Trim by allowing the autopilot to calculate how far off course the vessel has gone over a given time period.[131] The effect of vessel length being off by one setting on rudder movement would be "very limited" and perhaps not even noticeable.[132]

The autopilot's zero point tells gives the rudder positioning required to make the vessel go in a straight line, i.e. midships.[133] If improperly calibrated, it would cause the autopilot to perform in a sloppy manner, constantly trying to compensate for the inability to hold course.[134] The vessel would make an "S" around the true course heading.[135] Although this could help explain an unexpected turn such as that which took place on November 5, 2010, the zero point would have had to have been set all the way to the extreme hard over position to explain what Captain Edvardsen observed. Penn has presented no evidence that this was true. Further, if the zero point were so badly

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[129] (Burke Dep. 44:13-45:5.)

[130] (*Id.* at 44:25-45:5.)

[131] (*Id.* at 43:14-23.)

[132] (*Id.* at 43:14-23, 79:11-80:10.)

[133] (Burke Dep. 47:13-19.)

[134] (*Id.* at 47:13-49:8.)

[135] (*Id.*)

miscalibrated, the issue would have surfaced before the accident.[136]

As explained, the end points are the rudders' position when maximum analog drive voltage is applied.[137] In this case, the end points allowed the rudders to go hard over to 40 degrees. However, they could not have caused the rudders to do so without some intervening command or signal. Thus, none of these console settings could have caused the rudders on the BLUEFIN to go hard over. All of them are essentially red herrings in this case.

b. Assuming that loose wire screws or spare cables could have caused the alleged malfunction, Penn has not proven that they did.

Even finding that Rhodes owed a duty to tighten the screws and remove the cable from the JD53 box,[138] and further that Rhodes failed to do so,[139] Penn would still need to prove that the alleged malfunction in this case was, more likely than not, caused by that failure.[140] The evidence does not allow Penn to meet this burden.

The JD53 box, where Pisciotta tightened screws and removed the spare cable is the "heart and brain" of the autopilot.[141] It contains the steering logic of the autopilot and connects it to other systems on board the vessel, including the EMI steering control.[142] It is reasonable to infer that whatever happened on November 5, 2010, the JD53 box was involved, whether it was functioning

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[136] (*Id.* at 81:14-22.)

[137] (Ex. 15-000063, 15-000067.)

[138] (*Id.* at 34:23-35:11.)

[139] (Trial Tr. vol. 1, 263:17-21.)

[140] (*Id.* at 263:9-16, 265:15-266:15, 270:12-16.)

[141] (Burke Dep. 30:19-25.)

[142] (*Id.*; Trial Tr. vol. 1, 264:6-7.)

properly or not.

There are three basic wiring systems in the JD53. There is the main power supply.[143] Next, there is the circuit board in the analog drive that connects the autopilot to the rudder system through the EMI.[144] It controls the rudders by positive and negative voltage.[145] A positive charge moves the rudders in one direction, either port or starboard; a negative charge moves them the opposite way.[146] When there is no charge, the rudders go to midships or what the autopilot thinks is midships.[147]The third wiring system attaches to the motherboard, i.e., the "brains" of the autopilot.[148] When its wiring is completely disconnected, it triggers an alarm on the autopilot console.[149]

There was reasoned expert consensus that loose wiring in the analog board could only affect the rudder feedback system by causing the rudders to return to midships.[150] Therefore loose wiring in the analog board could not have caused the accident on November 5, 2010. Likewise, Penn has presented no credible evidence of how a spare cable pressing against the analog boards might have caused the rudder to go hard over.

The evidence was murkier regarding whether loose wiring in the main power supply or the

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[143] (Trial Tr. vol. 2, 484:2-6.)

[144] (*Id.* at 484:6-9.)

[145] (*Id.* at 426:1-5; Burke Dep. 46:14-47:11.)

[146] (Trial Tr. vol. 2, 362:3-12, 426:6-9.)

[147] (*Id.*)

[148] (Trial Tr. vol. 2, 484:10-12.)

[149] (*Id.* at 485:1-4.)

[150] (*Id.* at 484:6-9; Trial Tr. vol. 2, 40:1-9, 78:3-9.)

motherboard either caused or contributed to this accident. The motherboard is the brains of the autopilot and would naturally affect its responsiveness. The manufacturer's corporate representative, Tom Burke, testified that an inconsistent power supply to the unit raised uncertain possibilities for operations.[151] This would tend to credibly support Mr. Pisciotta's instincts about loose screws and erratic behavior.[152] Eric Jackson only discussed what would happen if the power supply and the wiring on the motherboard were removed altogether.[153] It is hard to know the probative value of the experiments that Rhodes and Jackson did on their mock up of the autopilot and steering system, based on the limited information presented.[154]

In any case, Penn must do more than establish the mere possibility that loose wiring led to the malfunction that it has alleged. It must establish that loose wiring *more likely than not* caused the accident. Penn is unable to meet this burden for two important reasons: the delayed onset of this alleged malfunction and Penn's failure to rule out operator error.

i. The timing of this incident undermines any possible inference of causation.

First, assuming wiring was to blame for this problem, it should have surfaced earlier and more consistently. The autopilot operated well for several months before the accident in this case. Penn only points to the BLUEFIN's propensity to "S" around its preset course when the autopilot

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[151] (Burke Dep. 36:11-19, 38:16-20, 39:21-24, 40:23-24.) Although Burke later gave contrary testimony, he was apparently focused on how the analog drive would respond to losing power. (*See id.* at 40:1-9, 78:3-9.)

[152] (Trial Tr. vol. 1, 270:12-13, 263:11-13, 301:1-6, 302:24-303:1.)

[153] (Tr. vol. 2, 485:1-4.)

[154] (*See id.* at 482:16-483:4.)

was engaged during its maiden voyage.[155] However, these problems went away after EMI serviced the main steering system for a "starboard draw" and Branden Rhodes recalibrated the autopilot's zero point.[156] Either of these issues could have accounted for the problem. The autopilot's response to the vessel going off course unexpectedly is to try to correct, resulting in the "S" pattern.[157] In any case, the Court cannot rule out something besides loose wiring caused these initial problems.

A possible explanation for why there were no earlier incidents is that "excessive" vessel vibrations gradually loosened terminal screws. However, the evidence provides no support for this hypothesis. Even granting that the vessel vibrations on the BLUEFIN were severe, they never lasted long.[158] Other equipment close to the engine was seemingly unaffected by whatever vibrations did occur.[159]

In the end, the only evidence that Penn can marshal to explain this timing issue is Tom Burke's statement that wiring issues theoretically can cause a delayed reaction.[160] Under the circumstances, this testimony is less than persuasive.

ii. Penn has not ruled out "operator error" as the lone cause of this accident.

Even giving Penn the benefit of Tom Burke's "anything's possible" statements, the Court does not find causation in plaintiff's favor based on the evidence presented because Penn has not

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[155] (Rec. Doc. 204 at 5-6.)

[156] (Trial Tr. vol. 2, 341:1-342:25; Ex. 21-000001.)

[157] (Burke Dep. 47:13-49:8.)

[158] (Trial. Tr. vol. 2, 335:3-5.)

[159] (Trial Tr. vol. 1, 297:5-9; 316:10-16.)

[160] (*Id.* at 91:3-8.)

sufficiently ruled out the possibility that this accident was caused by Captain Edvardsen's improper operation of the autopilot.[161]

As described above, autopilot steering on the BLUEFIN requires the harmonious operation of the EMI steering console and the autopilot together.[162] The EMI console is wired into multiple steering devices, including the hand steering lever and the autopilot, and determines which device has control over the vessel. However, the EMI console does not control the autopilot.[163] Changes to autopilot steering have to be made directly on the autopilot console.[164]

The autopilot has various operating modes, two of which – AUTO mode and AUTO-WORK mode – steer the vessel using a preset course or "heading reference" between 0 to 359 degrees.[165] The "AUTO" button engages AUTO mode; the "WORK" button engages AUTO-WORK mode unless a non-AUTO steering mode has already been activated.[166]

The primary difference between AUTO and AUTO-WORK mode is that AUTO-WORK is designed to steer a vessel that is laden with cargo.[167] It applies more rudder during navigational commands to compensate for additional weight.[168] A second difference between the two modes is

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[161] *Houston-New Orleans, Inc.*, 353 F. Supp. at 896.

[162] (Trial Tr. vol. 2, 454:9-13.)

[163] (Ex. 9-000015.)

[164] (*Id.*)

[165] (Exs. 16-000025 to16-000044, 16-000059.)

[166] (Ex. 16-000018.)

[167] (Trial Tr. vol. 1, 124:15-20.)

[168] (*Id.*)

that AUTO has an off-heading alarm which sounds when the vessel is more than 10 degrees off course, whereas AUTO-WORK does not.[169]

Finally, according to the autopilot's operator manual, AUTO mode gives the pilot greater ability to make course adjustments using the EMI hand steering controls. From AUTO mode, a pilot can place the autopilot on standby ("STBY"), hand steer to a new heading using the EMI controls, and re-engage the autopilot by pressing "AUTO" or "WORK."[170] He can also hand steer to a new course heading using the EMI controls, and press "AUTO" again, without ever pressing STBY.[171] Pressing "AUTO" while the autopilot is already in AUTO mode will set or "catch" a new heading reference without the need to put the autopilot in STBY.[172] By contrast, from AUTO-WORK mode, this second option is not available: pressing "WORK" a second time will not reset the heading reference.[173]

The failure to properly input a new heading reference when switching between hand steering and the autopilot could have disastrous consequences. The autopilot would immediately navigate toward the most recent heading reference, notwithstanding the effort to steer to a new one.

Just before the accident, Captain Edvardsen was in AUTO-WORK tracking a heading of approximately 317 degrees and then hand steered to a new 359 degree heading on the EMI controls

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[169] (Trial Tr. vol. 1, 131:2-11.)

[170] (Burke Dep. 57:21-58:1.)

[171] (Ex. 16-000018.)

[172] (*Id.*)

[173] Selecting "WORK" from AUTO-WORK mode may change the autopilot to AUTO mode. (*Id.*) There is no command associated with pressing "AUTO" from AUTO-WORK mode. (*Id.*)

before returning to autopilot control.[174] There is no question that failure to properly input the new reference heading *would* have caused the accident on November 5, 2010 by making the BLUEFIN sheer toward its previous 317 degree heading.[175]

Penn argues that it has successfully ruled out this possibility by proving that Captain Edvardsen properly operated the autopilot.[176] The Captain testified that he pressed STBY on the autopilot console before switching to hand steering on the EMI controls, such that the autopilot should have "caught" a new heading reference when he pressed AUTO-WORK after returning control to the autopilot on the EMI console.[177] Mate Washburn testified that he saw the Captain move for the autopilot controls, somewhere in the vicinity of the STBY button before he switched to hand steering on the EMI controls.[178]

Rhodes has presented four "prior inconsistent statements" in which Captain Edvardsen failed to mention pressing STBY in an effort to impeach him. The Court agrees with Penn's characterization of these statements for the most part.[179] Captain Edvardsen's deposition testimony, on the whole, reflects that he pressed STBY.[180] Likewise, it would not have made much sense for the Captain to go into detail about how he transferred to and from hand steering on the Penn and

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[174] (Trial Tr. vol. 1, 74:4, 174:17-21.)

[175] (Burke Dep. 61:2-6.)

[176] (Rec. Doc. 204.)

[177] (Trial Tr. vol. 1, 74:15-19, 78:6-14.)

[178] (*Id.* at 244:7-16.)

[179] (Rec. Doc. 204 at 2-7.)

[180] (*See* Tr. 184:1-185:18.)

Coast Guard accident investigation reports because they only ask for a general explanation of how the accident happened and, at the time, he did not suspect that the sequence of buttons he pressed had anything to do with the accident.[181] At the same time, this is the problem with trusting Captain Edvardsen's memory of pressing STBY: he had no reason to question how had been transferring between hand and autopilot steering and whether it was correct, until he was already under pressure to remember the facts in a certain way.

In the end, the Court is unable to say with a fair degree of certainty that Captain Edvardsen did a proper heading "catch" when he brought the BLUEFIN around to 359 degrees in hand steering. The Captain's demeanor at trial when he was testifying about this important sequence was at best shaky. Although many people get nervous when they testify, there are other factors to consider. Captain Edvardsen had only paged through the operators manual and mainly relied on the quick reference manual to operate the device.[182] Despite how long he had been using the device, Captain Edvardsen was only familiar with its most basic functions.[183]

What is most damaging to the credibility of Captain Edvardsen's testimony that he properly disengaged autopilot by hitting STBY was his confused, contradictory testimony that this step was ultimately unnecessary. On cross-examination, he testified that transferring from autopilot to hand steering on the EMI system would automatically place the autopilot console in STBY, contrary to his previous testimony and all other evidence presented.[184] He also volunteered multiple times that

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[181] (Trial Tr. vol. 1, 145:3-4; Exs. 10-000002, 10-000013-14.)

[182] (Trial Tr. vol. 1, 112:11-113:4.)

[183] (*Id.* at 109:10-110:4; Burke Dep. 66:19-67:7.)

[184] (Trial Tr. vol. 1, 149:5-16.)

it was possible to implement a new heading reference simply by pressing "WORK" after hand steering to a new heading.[185] As already explained, there is no support for this understanding in the operator manual. Pressing "AUTO" while in AUTO mode will reset the reference heading; pressing "WORK" while in AUTO-WORK mode will not.[186] On these facts, the Court cannot say with adequate certainty that Captain Edvardsen knew the correct sequence of buttons to press or that he faithfully executed that sequence at the time of the incident. This is true even without taking into account the Captain's statements to the Coast Guard investigator.[187]

Captain Edvardsen's confusion about whether "WORK" would cause the autopilot to reset its heading reference would explain why he was able to replicate the circumstances of the incident reliably for the Coast Guard and the American Bureau of Shipping. As for the "erratic" behavior observed by Tom Pisciotta, it was almost entirely consistent with the misaligned zero point that he discovered and corrected. Every time he lined up the autopilot heading with the BLUEFIN's actual heading and reengaged the autopilot, the rudder would shift 6-8 degrees.[188] The autopilot's zero point was misaligned by approximately that much.[189] This does not constitute erratic behavior.[190]

As for Pisciotta's single unsuccessful attempt to turn the rudders directly using the autopilot

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[185] (Trial Tr. vol. 1, 152:8-24, 153:6-12, 188:16-22, 194:10-20.)

[186] (Ex. 16-000018.)

[187] (Trial Tr. vol. 1, 149:5-20; Ex. 40.1.)

[188] (Trial Tr. vol. 1, 259:2-12.)

[189] (*Id.* at 276:1-277:7.)

[190] As already explained above, the Court does not find that Rhodes was responsible for this misalignment; the rudder end point had been set by someone else below where the rudders went during the accident.

controls, he admitted that his knowledge of the device was imperfect when he went to service the unit.[191] As Tom Burke suggested, it is difficult to give much weight to Pisciotta's post-accident testing without knowing precisely what he did or that he did it properly.[192]

For all of these reasons, Penn has not ruled out the possibility that this accident happened as the result of operator error.

II. Products Liability

Penn also claims that Rhodes is liable for selling an unreasonably dangerous product. Admiralty law incorporates products liability including strict liability for a defective product.[193] The Fifth Circuit has applied Restatement (Second) of Torts, § 402A to products liability claims in the maritime context.[194] Under that section, a seller may be held liable for harm caused by a defective product placed in the stream of commerce.[195] To prevail on a products liability claim, a plaintiff must establish: (1) that the defendant sold the product; (2) that the product was unreasonably dangerous or defective when it left the defendant's control; and (3) that the defect caused the plaintiff's injury.[196]

As Penn has indicated in its post-trial briefing, defect and causation may be inferred when

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[191] (*Id.* at 292:10-25.)

[192] (Burke Dep. 98:10-20.)

[193] *E. River S.S. Corp. v. Transamerica Delaval, Inc.*, 476 U.S. 858, 865, 106 S. Ct. 2295, 2299, 90 L. Ed. 2d 865 (1986).

[194] *Transco Syndicate No. 1, Ltd. v. Bollinger Shipyards, Inc.*, 1 F. Supp. 2d 608, 614 (E.D. La. 1998).

[195] *Id.*

[196] *Authement v. Ingram Barge Co.*, 977 F. Supp. 2d 606, 614 (E.D. La. 2013).

an article fails in ordinary use, even if the evidence does not indicate the precise nature of the defect or the exact mechanism of causation.[197] Nevertheless, Penn's product's liability claim must fail at in light of Penn's failure to rule out operator error as an alternative explanation with a fair degree of certainty.[198] Accordingly, Penn has no products liability claim against Rhodes.

CONCLUSION

Penn has failed to establish that any of the autopilot settings, conditions, or defects alleged in its complaint caused the accident in this case. It is at least equally probable that Captain Edvardsen failed to properly operate the autopilot on the night in question.

Accordingly,

IT IS ORDERED that judgment be entered in favor of defendant Rhodes Electronic Services Inc. and against plaintiff Penn Maritime, Inc. on Penn Maritime, Inc.'s complaint.

IT IS FURTHER ORDERED that judgment be entered in favor of third-party defendants, Thoma-Sea Marine Constructors, LLC and Thomassie Properties LLC, f/k/a Thoma-Sea Shipbuilders LLC and against third-party plaintiff Rhodes Electronic Services, Inc. on Rhodes Electronic Services, Inc.'s third-party complaint.

New Orleans, Louisiana, this 18th day of August, 2014.

HELEN G. BERRIGAN
UNITED STATES DISTRICT JUDGE

[197] *Houston-New Orleans, Inc.*, 353 F. Supp. at 895-896.

[198] *Id.*