

**UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
WASHINGTON, DC**

In the Matter of: GRIFFIN AVIONICS, INC.

FAA Order No. 2007-9

Docket No. CP04NE0005
DMS No. FAA-2004-19068¹

Served: August 2, 2007

DECISION AND ORDER²

Respondent Griffin Avionics, Inc., (Griffin) has appealed the written initial decision of Administrative Law Judge (ALJ) Isaac D. Benkin.³ In that decision, the ALJ held that Griffin, a Part 145-certificated repair station, violated 14 C.F.R. § 145.57 (2001)⁴ when it used an uncalibrated static test box while performing a transponder integration test. The ALJ assessed a \$1,100 civil penalty for this violation.

¹ Materials filed in the FAA Hearing Docket (except for materials filed in security cases) are also available for viewing through the Department of Transportation's Docket Management System (DMS). Access may be obtained through the following Internet address: <http://dms.dot.gov>.

² The Administrator's civil penalty decisions, along with indexes of the decisions, the rules of practice, and other information, are available on the Internet at the following address: http://www.faa.gov/about/office_org/headquarters_offices/agc/pol_adjudication/AGC400/Civil_Penalty/. In addition, Thomson/West publishes Federal Aviation Decisions. Finally, the decisions are available through LEXIS (TRANS library) and WestLaw (FTRAN-FAA database). For additional information, see the website.

³ A copy of the ALJ's written decision is attached, but is not included on the FAA website.

⁴ It was provided in 14 C.F.R. § 145.57 (2001), entitled "Performance standards," as follows:

- (a) Except as provided in § 145.2, each certificated domestic repair station shall perform its maintenance and alteration operations in accordance with the standards in part 43 of this chapter. ...
- (b) In addition, each certificated domestic repair station with a radio rating shall comply with those sections of part 43 of this chapter that apply to electric systems, and shall use materials that conform to approved specifications for equipment appropriate to its rating. It shall use test apparatus, shop equipment, performance standards, test

On appeal, Griffin argues that the ALJ failed to recognize that its employee, Bruce Bartlett, used a calibrated ATC-600A test set to ensure that the transponder output reflected the altitude – within 125 feet – shown on the pilot’s altimeter. According to Griffin, an uncalibrated Barfield static system test box was used to induce a vacuum pressure directly to the altimeter to simulate altitude but there was no need for the static system test box to be calibrated because it was used solely as a vacuum source, not to record any test data.

After review of the entire record and consideration of the briefs, Griffin’s appeal is granted, and the ALJ’s finding of a violation related to the use of an uncalibrated piece of equipment is reversed.

I. The Complaint.

Complainant alleged that on April 12, 2001, Griffin, the holder of an air agency certificate, with several ratings including a Radio Class 3 rating, performed a transponder integration test required by 14 C.F.R. § 91.413⁵ on N6875D, a Cessna CE402-C.

methods, alterations and calibrations that conform to the manufacturers’ specification, and if not otherwise specified, to accept good practices of the aircraft radio industry.

⁵ Section 91.413, entitled “ATC transponder tests and inspections,” provided in pertinent part: “No persons may use an ATC transponder ... unless [f]ollowing any installation or maintenance on an ATC transponder where data correspondence error could be introduced, the integrated system has been tested, inspected, and found to comply with paragraph (c), appendix E of part 43 of this chapter.” 14 C.F.R. § 91.413(a) and (b) (2001).

Paragraph (c) of Part 43, Appendix E, entitled “Automatic Pressure Altitude Reporting Equipment and ATC Transponder Integration Test,” provided in pertinent part as follows: “Measure the automatic pressure altitude at the output of the installed ATC transponder when interrogated by Mode C at a sufficient number of test points to ensure that the altitude reporting equipment, altimeters and ATC transponders perform their intended functions as installed in the aircraft. The difference between the automatic reporting output and the altitude displayed at the altimeter shall not exceed 125 feet.” 14 C.F.R. Part 43, App. E, ¶ (c).

Complainant alleged that Griffin performed this maintenance using test equipment owned by Hyannis Air Service (HAS) when that equipment was not properly calibrated.⁶

II. The Facts.

A. Background. HAS operates regularly scheduled passenger-carrying aircraft service under the name “Cape Air.” In 2001, the FAA’s New England Communication Center informed Aviation Safety Inspector David O’Donnell that a Cape Air airplane, N6875D, made an emergency landing in Provincetown, MA, with inoperative instruments.⁷ (Tr. 49-50, 117, 125.) O’Donnell learned that the emergency landing occurred on the first flight that N6875D made after it was returned to service after maintenance performed by HAS’s Charles Tavilla, a certificated mechanic with airframe and powerplant (A & P) ratings, and by Bruce Bartlett, Griffin’s service manager and avionics technician. (Tr. 49-50.) Inspector O’Donnell and Aviation Safety Inspector Stephen Grotta, Griffin’s and Cape Air’s Principal Maintenance Inspector, conducted an investigation regarding the maintenance that Griffin and HAS had performed to determine whether it had contributed to the instrument failure leading to the emergency landing.⁸

⁶ Complainant also alleged that contrary to the current Cessna maintenance manual, Griffin failed to attach a vacuum line to the pitot tube to apply static pressure to the pitot tube during the transponder integration test. The evidence introduced at the hearing showed that HAS failed to comply with the current Cessna maintenance manual instructions when it performed a static leak test before Bruce Bartlett, Griffin’s service manager and avionics technician, arrived. The ALJ held in the initial decision that Griffin was not responsible for this improper maintenance because it had been performed by HAS. The ALJ held, as a result, that Griffin did not violate 14 C.F.R. §§ 43.13(a) and 43.15(a) as a result of the failure to attach a vacuum line to the pitot tube during the static leak test. Complainant did not appeal from this determination by the ALJ, and as a result, there is no need to discuss this allegation any further in this decision.

⁷ The airspeed indicator, the copilot’s altimeter and the vertical speed indicator were inoperative. (Tr. 49.)

⁸ Inspector O’Donnell was qualified as an avionics expert at the hearing. (Tr. 124.)

B. The Static System Leak Test Performed by HAS. During the investigation, Inspector Grota learned that on April 12, 2001, Tavilla changed the altimeter, replaced the transponder, and performed a static leak test on the aircraft's static system. (Tr. 98, 103; FAA Exhibits 2 and 5.) In general, the static system leak test involves inducing a vacuum into the system and observing whether there is any reduction in the vacuum that would indicate an excessive leak of outside air. To perform the static system leak test, Tavilla hooked his Barfield static system test box to the aircraft's static system.⁹

C. The Correspondence Test Performed by Griffin. After Tavilla completed the static system leak test, HAS contacted Griffin to perform an ATC transponder system integration test, also called a "correspondence" test. As a repair station with a Class 3 radio rating, Griffin was qualified under 14 C.F.R. § 91.413(c) to perform the correspondence test on N6875D's transponder.¹⁰

A transponder is an electronic device that transmits information about an aircraft's location to air traffic control (ATC). When an aircraft transponder receives a radio-frequency interrogation from an ATC facility, the transponder responds to ATC by sending a signal with identifying information about the aircraft. A Mode C transponder

⁹ Tavilla had sealed the static ports with 1-inch pieces of black electrical tape when he conducted the static system leak test. He could not recall whether he had removed the pieces of tape before the aircraft was returned to service. (Tr. 56, 57, 104; FAA Exhibit 2.) After the emergency landing, black electrical tape was found over the static ports. (Tr. 57, 105; FAA Exhibit 1.)

The FAA determined that there had been a pitot-static system failure during the first flight after the aircraft returned to service. (Tr. 126.) Inspector O'Donnell testified that the tape covering the static ports was a partial cause of the incident. (Tr. 163.) Bartlett opined at the hearing that the tape covering the ports caused the system failure. (Tr. 175-176.)

It should be noted, however, that Inspector O'Donnell also testified that the tape on the ports did not affect the accuracy of the correspondence test that Bartlett performed. (Tr. 161.)

¹⁰ It was necessary to perform the correspondence test because the transponder had been replaced. (Tr. 51, 167.) 14 C.F.R. § 91.413(b) (*see* p.2, n.5, *supra*.)

will also provide altitude information to ATC, so that the aircraft's altitude will be included in the data block about the aircraft that appears on the controller's radar scope. The purpose of a correspondence test is to ensure that the aircraft's altitude, as measured by the aircraft's altimeter, is within 125 feet of the altitude transmitted to ATC by the transponder. (Tr. 135-136.) Significantly, this test is not intended to determine the accuracy of the aircraft's altimeter.

Bartlett, who has served as Griffin's service manager for 30 years, went to HAS and performed the correspondence test, with Tavilla's assistance. Although Tavilla's mechanic certificate with A&P ratings did not qualify him to perform the correspondence test himself, he was qualified to assist Bartlett to perform the test. (Tr. 54, 64.)

Tavilla isolated the altimeter, the transponder and encoder, and the vertical speed indicator for Bartlett. (Tr. 167-168.) To do this, Tavilla hooked up a series of hoses and fittings to the static system behind the pilot's instrument panel. (Tr. 180.) Bartlett did not observe where Tavilla attached the hoses and fittings. (Tr. 168, 180.)¹¹

Tavilla "pumped up or evacuated" the pilot's altimeter and the vertical speed indicator, which is below the pilot's altimeter, using the Barfield static system test box's vacuum pump. (Tr. 52, 168, 170, 174.) In other words, Tavilla applied a vacuum to the altimeter, reducing the pressure measured in terms of pounds per square inch (PSI), to simulate increasing altitude. (Tr. 70-72.) The dial on the Barfield static system test box measures PSI, and does not provide any information regarding altitude. (Tr. 87, 112.)¹²

¹¹ He testified that he verified that those instruments were isolated by observing the instruments in the cockpit while small amounts of pressure were applied "very slowly." (Tr. 168-169, 181.)

¹² Inspector Grotta testified that "to report the same altitude as an altimeter in the cockpit, you would need a conversion chart to convert the inches of mercury on the vacuum gauge – and there was no graph connected to this box to do that." (Tr. 87.)

According to Bartlett, during the correspondence test, as a result of the vacuum applied directly and gradually to the altimeter, the aircraft was brought up to a simulated altitude of 28,000 feet,¹³ as measured by the altimeter. (Tr. 169, 175.) He said that it took about 10 minutes to reach a simulated altitude of 28,000 feet and then about 10 minutes to bring the simulated altitude back down. (Tr. 169.)

While Tavilla applied the vacuum to simulate increasing altitude, Bartlett observed the instruments in the cockpit, as well as his ATC-600A test set. (Tr. 151, 175; FAA Exhibit 2.) The ATC-600A test set radiates a signal from the test set antenna to the airplane (Tr. 169-170), and “reads out digitally the altitude coming out of the transponder as the airplane is brought up to altitude for the data correspondence test.” (Tr. 173.) Bartlett compared the data provided by the altimeter and the ATC-600A test set to determine whether the altimeter readings and the altitude data transmitted by the transponder were within 125 feet of each other. (Tr. 175.) According to Bartlett, “the check went fine.” (Tr. 169.)

The evidence was uncontroverted that Bartlett’s ATC-600A test set was calibrated. (Tr. 144, 169-170, 172.) Bartlett testified that he could not have performed the correspondence test without his calibrated ATC-600A test set. (Tr. 172.)

Tavilla’s static system test box, in contrast, was not calibrated. As Inspector Grota testified, if the static system test box had been calibrated it would have had a calibration sticker affixed to it. However, the static system test box that Tavilla used did not have a calibration sticker. Also, according to Inspector Grota, Cape Air’s chief inspector informed Inspector Grota that Tavilla’s static system test box had not been

¹³ Bartlett testified that this was necessary because 28,000 feet was the aircraft’s service ceiling. (Tr. 174.)

calibrated. (Tr. 55.) Bartlett did not check to see whether Tavilla's static system test box was calibrated. (Tr. 61.)

Complainant's and Griffin's witnesses expressed different opinions regarding the appropriateness of using an uncalibrated static system test box during the correspondence test. Inspector O'Donnell testified that Tavilla's test box should have been calibrated because without a calibrated box, you cannot determine whether the altimeter is giving accurate altitude information. (Tr. 140, 200.) Bartlett, in contrast, testified that to perform the correspondence test, you can use any uncalibrated tool, even a hand pump or a medical hand-operated bulb, to create the vacuum. (Tr. Tr. 170, 175.) He acknowledged that the static system test box's pump does not provide any useful information but merely is a tool to apply pressure to the altimeter. (Tr. 170.) He testified that there was no need for a calibrated static system test box because "all the checks are made against the pilot's altimeter" and then "[y]ou watch the pilot's altimeter and the 600[A]." (Tr. 175.)

III. The Initial Decision.

The ALJ noted in this initial decision that Tavilla had connected his static system test box to the static system for the static system leak test. After Tavilla conducted the static system leak test, the ALJ explained, Bartlett conducted the transponder correspondence test, using a hand-operated rubber bulb and Tavilla's uncalibrated static system test box. The ALJ described Bartlett's performance of the correspondence test, with Tavilla's assistance, as follows:

Mr. Bartlett did not remove Mr. Tavilla's test kit from the static port; instead, he left it in place and climbed into the cockpit to perform the correspondence test. He created a vacuum in the transponder system by using a hand-operated rubber bulb placed on the opening of the pitot tube. Then he had

Mr. Tavilla read off to him the readings on the gauges of Mr. Tavilla's test kit. Mr. Bartlett compared those readings until he was satisfied that the replacement transponder was in good working order – at least from the standpoint of the test that he conducted.

(Initial Decision at 3.)

Regarding the allegations that Bartlett used uncalibrated equipment to perform the correspondence test, the ALJ wrote:

[T]he core of the charges against the Respondent rests upon two claims. First, that Mr. Tavilla's test box, upon which Mr. Bartlett relied when performing the correspondence test, was not properly calibrated. Second, that the Respondent used a hand-operated bulb to create a vacuum in the system rather than a conventional vacuum pump.

(Initial Decision at 6.)

The ALJ found that Bartlett's use of Tavilla's uncalibrated test box during the correspondence test was contrary to 14 C.F.R. § 145.57's requirement "that the correspondence test be performed in accordance with 'good practices of the aircraft radio industry.'" (Initial Decision at 10.) Also, the ALJ reasoned, Part 43, Appendix E, paragraph (c) requires the person performing the transponder system integration test to measure *accurately* the automatic pressure altitude at the output of the installed ATC transponder under specified conditions, even though the word "accurately" does not appear in that paragraph. An accurate measurement, he concluded, cannot be made by using a test box that has not been calibrated. (Initial Decision at 10.)

The ALJ held, in contrast, that Bartlett did not violate any regulation by using "a hand-operated bulb rather than a vacuum pump to produce the necessary vacuum in the transponder altimeter system." (Initial Decision at 11.) He based this determination upon the fact that Advisory Circular 43-6A and Part 43, Appendix E and F, do not

specify how to generate the vacuum required for the performance of the correspondence test.

Regarding the civil penalty, the ALJ concluded that the “use of uncalibrated test equipment to service a safety-related component such as a transponder is a very serious offense,” and assessed a \$1,100 civil penalty against Griffin. (Initial Decision at 12.)

IV. Analysis.

On appeal, Griffin correctly argues that the ALJ was in error when he held that Bartlett used only a hand pump (or hand bulb) to produce the vacuum and the uncalibrated Barfield static system test box to perform the correspondence test.¹⁴ Thus, according to the ALJ’s analysis, no calibrated equipment was used to perform the correspondence test. If that was so, then, indeed, Griffin would have violated the regulations. However, the preponderance of the evidence presented at the hearing proved that Tavilla used the uncalibrated Barfield static system test box as a vacuum source while Bartlett used his calibrated ATC-600A test set to compare the simulated altitude, as measured by the altimeter, and with the transponder’s reports of the simulated altitude.¹⁵

The ALJ held in the decision that Griffin did not violate any regulations by using an uncalibrated tool as a vacuum source. (Initial Decision at 11.) He correctly noted that the Advisory Circular, the Cessna maintenance manual, and Part 43, Appendix E of the

¹⁴ Complainant’s argument in its reply brief (mistakenly entitled “Complainant’s Appeal Brief”) that the ALJ held that 2 test boxes were needed and were used to perform the test ignores the plain language of the ALJ’s decision at 10-11. The ALJ’s analysis on pages 10-11 reveals plainly that he was concerned because an uncalibrated static system test box was used as a measurement device and that a hand-operated bulb, not a vacuum pump, was used to produce vacuum. Nowhere in the initial decision did the ALJ find that Bartlett used a calibrated 600A test set or analyze whether Bartlett complied with the alleged regulations by using his calibrated 600A test set.

¹⁵ The fact that Tavilla used the static system test box as a vacuum source while Bartlett performed the correspondence test is uncontested by the parties.

FAR, did not provide instructions for how to create the vacuum needed for the correspondence test. (Initial Decision at 11.) Applying this reasoning to the evidence, the ALJ should have found that the use of the uncalibrated Barfield static system test box – rather than a handheld pump or bulb – solely as a vacuum source did not constitute a violation of the regulations. Bartlett used the calibrated ATC-600A test set to compare the data provided by the altimeter and the transponder, and as a result, he satisfied the regulatory requirement to use calibrated equipment when performing the transponder correspondence test.

Inspector O'Donnell's rebuttal testimony regarding the need for the use of a *calibrated* static test box as a vacuum source was not persuasive.¹⁶ He contended that a vacuum source alone would not enable the person doing the test to check to see if the "altimeter is reading the right altitude." (Tr. 200.) However, be that as it may, Bartlett performed a correspondence test, which is the test described in Part 43, Appendix E, paragraph (c). That test requires a comparison of the transponder's automatic reporting output and the altitude displayed on the altimeter; it does not require testing the accuracy of the altimeter.

For these reasons, the ALJ's holding that Griffin violated Section 145.47 of the FAR by using uncalibrated equipment is not supported by the evidence and the

¹⁶ Complainant argues in its reply brief at page 3 that Griffin is challenging the ALJ's credibility assessments of the witnesses and that those assessments should not be disturbed. However, Inspector O'Donnell testified as an expert witness, providing his opinions regarding the need for the use of calibrated equipment. He did not testify as a percipient fact witness. Hence, his testimony must be evaluated on its logic, depth and persuasiveness. *E.g.*, In the Matter of Stambaugh's Air Service, FAA Order No. 2001-7 (May 16, 2001). Findings of the ALJ based on the testimony of expert witnesses do not deserve the deference accorded to an ALJ's factual findings based upon his assessment of witness credibility.

regulations themselves. As a result, the ALJ's decision regarding the use of uncalibrated equipment is reversed.

IV. Conclusion

Accordingly, the ALJ's finding in his initial decision that Griffin violated 14 C.F.R. § 145.57 by using uncalibrated equipment to perform the transponder correspondence test is reversed. No civil penalty is assessed.

[Original signed by Marion C. Blakey]

MARION C. BLAKEY, ADMINISTRATOR
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