

Aviation Maintenance

The Monthly Management Tool

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Jim Perkins

Perkins Windshields

Provoke OEM Backlash

Big Brother
is Watching You!

Borescopes
To Go

Sourcing Spares
with Source One

**American Eurocopter
Composites:**
Not Just Helicopters

New Battlefield In

The fight over acceptance of PMA parts is shifting from the parts themselves to their installation. One OEM is fighting back with a policy that leaves owners in the cold.



(Left) Perkins Aircraft Services president Jim Perkins is squaring off with Cessna on inspection support for his PMA Citation windshields.

Imagine this scenario: You own a Cessna Citation. Before you bought it, the cockpit windshields had been replaced. It is due for a phase inspection, so you schedule the work with your Citation service center, which is owned by Cessna and has provided excellent service.

The inspection goes fine, until the day before delivery is due. You get a call from

also include bushed holes. The big cost difference comes when an owner wants to replace an original Cessna windshield, which did not come with bushings, with just a new windshield using the old retainers. In this case, Perkins windshields are the only option, because they can be installed using the old retainers and they have bushings, which lengthens their service life. The owner

company already, however, spent \$75,000 to put its Learjet windshields through a full bird-strike regimen to allay concerns expressed by Learjet about whether the Perkins windshields met all certification and safety requirements. The bird-strike tests were not mandated by the FAA.

When obtaining certification for an aircraft part, there are maintenance considerations.

The PMA Wars

the service center manager.

“I’m sorry, sir,” he tells you. “We signed off the phase inspection, but the airplane is unairworthy because of the windshields on your airplane. They were not purchased from Cessna. Because they are not original Cessna parts, they are not inspectable according to Cessna’s maintenance manual.”

After you catch your breath and sit down, you ask what this means. The service manager says it is up to you to deal with the windshields. You have two options: replace the windshields with new, OEM-sanctioned Cessna parts at a cost of about \$40,000 to \$50,000 (including installation). Or have your windows inspected by a qualified company. Unfortunately, the service center won’t be able to help you there. Meanwhile, your Citation will sit outside until you decide what to do with it.

Say what?

It turns out the previous owner of your Citation elected to save some money when she needed new windshields. For typical Citation 500-series jets, there are two options: factory-new windshields from Cessna or new ones made by Perkins Aircraft Services under FAA parts manufacturer approval (PMA) regulations. A new left Citation 501 windshield, part number 9912064-15, costs \$10,795. The Perkins price? \$8,000. That doesn’t seem like a huge difference, but there is a wrinkle.

When technicians remove an old windshield, it is difficult, but not impossible, to preserve the old retainers. Using Cessna windshields requires complying with a Cessna service bulletin calling for new retainers.

Perkins’s Citation windshields are designed with aluminum bushings in the fastener holes. The new Cessna windshields with the bulletin-approved retainer system

saves the price difference between the Cessna and Perkins windshields (\$2,750 per windshield) and the cost of the service bulletin retainer upgrade (another \$4,000 to \$6,000 per windshield, according to Perkins Aircraft Services president Jim Perkins).

How is it certified?

Complying with the service bulletin usually involves drilling holes in the window frame to allow the new retainers to fit. Some maintainers balk at doing this. Rather than add holes in the window frame structure (which is not replaceable), and in some cases elongating the old holes, they would rather use the old retainers and the original holes.

Cessna, like most OEMs, doesn’t make its own windshields, but subcontracts their manufacture, in this case to Sierracin/Sylmar. (Cessna is reportedly working with Pilkington and Lee Aerospace on qualifying these companies’ windshields). When seeking FAA certification for an airplane, OEMs generally certify all the products attached to that airframe at the same time, fulfilling whatever regulatory requirements apply to each of the products used on the aircraft. Windshields, for example, usually must endure bird-strike tests during aircraft certification.

Because they aren’t being certificated as part of an entire aircraft, PMA parts in some cases must undergo more stringent testing than what is done to a similar part during aircraft certification.

Perkins Aircraft Services obtained FAA PMA certification for its Citation windshield using the process known as identity. This means Perkins had to prove to the FAA that its windshields duplicated the Cessna windshields in material, design, fit, and function. Perkins was not required to perform bird-strike tests on its Citation windshields. The

The FAA is adamant about ensuring that modifications and upgrades come with instructions for continued airworthiness, a fancy term for maintenance requirements. The Citation maintenance manual already includes data for maintaining the original windshields. Because the Perkins windshields are certificated via identity, the FAA did not ask Perkins to include instructions for continued airworthiness with its PMA windshields.

“The Citation windshield is the same thickness, the same material, and the same [manufacturing] processes as the original,” Perkins, the company president, said. “The FAA told us all we have to do is reference the OEM manuals.”

But last year, Cessna expressed its concern with the Perkins windshields in a letter to its service centers. The July 12, 2002 letter from Joe Quackenbush, manager, service center administration, was faxed to **Aviation Maintenance** by Jim Perkins, who obtained it from a service center that works on Citations but is not Cessna-owned. The full text of the letter is to the right.

Jim Perkins believes Cessna issued this letter because “we’ve cost them a tremendous amount of money. The lame excuse is saying it’s safety. It’s commerce. They need to admit it.”

Without pressure from alternative suppliers such as Perkins, OEMs like Cessna charge the maximum amount possible for OEM parts, Perkins said. “We’re the last line of defense. Somebody’s got to keep them honest.

“I think that we as an industry cannot allow one OEM to disregard the FAA’s judgment and try to force-feed their overpriced spare parts to the operators,” he added. “Should Cessna be successful in stifling one PMA producer, then they will try to do the

same to all PMA producers. Without competition, the cost of parts will soar.”

On October 7, 2002, Perkins sent a letter to Cessna chairman Russ Meyer asking the company to reverse the policy laid out by Quackenbush.

For its part, Cessna is standing by its claim that it doesn't have the information needed to evaluate the technical merits of the Perkins PMA windshields. Cessna's concern stems from the fact that windshields are part of the primary structure. In an October 12, 2002 reply to Jim Perkins, printed below, Cessna vice president and general counsel T.W. Wakefield outlined Cessna's position.

At this point, Jim Perkins drafted a letter in response, explaining that in 1994 he had met with Cessna in an effort to obtain approval as a source of Citation windshields and offered Cessna a complete data package on the Perkins product. Cessna expressed no interest in Perkin's Citation windshield, so Perkins sought FAA PMA approval. Two years ago, Perkins wrote in the draft, a Cessna commodity team performed a full audit of the Perkins facility, going over the engineering capabilities, materials, processes, quality control procedures, manufacturing procedures, and capa-

Cessna letter on “Perkins windshields: Support limitations”

Due to the large number of new employees in our organization, the following Policy is being re-emphasized to ensure all employees are aware:

Perkins markets a variety of replacement Windshields for Cessna 500 Series Citations, usually just adding the letters “PAS” to the Cessna Part Number, for example: “9912207-8PAS”

While these Perkins windshields have FAA PMA Approval, and do not require an STC to install them, Cessna Engineering has been unable to obtain satisfactory Test Data indicating that these windshields meet the requirements and specifications for Cessna Approval. Consequently, Perkins is NOT an approved Supplier of windshields to Cessna.

Therefore, Cessna Citation Service Centers will NOT install Perkins Windshields as replacements, and will NOT conduct Airworthiness Inspections on these products.

If a required Phase Inspection of Chapter 4 Task includes Itemcodes/ Tasks applicable to a previously installed Perkins Windshield, Cessna Citation Service Centers may NOT sign off that Phase Inspection of Chapter 4 Task as complete, and the aircraft CANNOT be Approved for Returned to Service. The MTR/Maintenance Log entry should read as follows:

“I certify that this aircraft has been inspected in accordance with a _____ inspection, except for Itemcode xxxxxx/Task xx-xx-xxx, and a list of incomplete Itemcodes/Tasks, discrepancies and unairworthy items dated _____ has been provided for the aircraft owner or operator.”

Please ensure all hands adhere to this directive.

bilities. Perkins wrote that one of the team members, a Cessna product engineering specialist, told him after the audit that “yours is the finest operation we have seen in some time and certainly much better than any other window facility that we have ever audited.”

Perkins said he believes the counsel's let-

ter “is just blowing smoke.” Cessna is saying that if Perkins is willing to pay for the review of its data, he said, then Cessna might be persuaded to change its mind. But Perkins is worried that Cessna can charge whatever it wants to pore over data that he says he has already offered.

The reason Perkins didn't send his

Cessna general counsel's letter to Perkins

I am responding to your letter to Mr. Russ Meyer dated October 7, 2002. Cessna Aircraft Company has certificated its aircraft windshield and window designs to FAR 25 criteria. Windshields and windows are primary structural elements for cabin pressure, flight loads, and bird impact. Periodic inspection programs are developed based on structural test results. The structural integrity of the windshields and windows is based on ultimate strength, fatigue and damage tolerance tests with consideration for environmental effects and a Cessna review of the vendor's materials, quality control procedures, processes and manufacturing facilities. We have conducted numerous tests to assure proper structural integrity, including but not limited to, strength, rigidity, flexibility, etc. We are comfortable with our aircraft windshield and window designs, vendors, inspection criteria, testing and certification.

We are not comfortable inspecting your windshield and window designs when certification and test data have not been provided. We do not know if your windshields will provide the structural strength needed for our aircraft designs or if your windshield and window designs assure proper structural strength for cabin pressure, flight loads, and bird impact. We have no testing data for your designs that would support the adequacy of our Service Manual inspection criteria for your windshields and windows. We do not have data on your materials, processes, quality control procedures, installation instructions, etc.

Your characterization of the letter sent by Mr. Quackenbush is in error. There is no coercion. There is a recognition that Cess-

na has inadequate data from your company to inspect the installation, strength, flexibility, and the ability to provide structural integrity for cabin pressure, flight loads and bird impact, etc., of your windshields. Until you provide such data and demonstrate such capabilities to Cessna, our mechanics are unable to certify your windshields and windows as airworthy. We are also unable to judge the safety of your products and therefore cannot represent to our customers that your designs are or continue to be adequate, have been properly installed, and are airworthy. As you can see, the lack of data drives our inspection position.

If you are willing to provide the requested data, we will entertain a mutually agreeable project wherein, at your cost, we will review the adequacy of your data, testing, inspection process, etc. A successful project review will allow our service centers to conduct full inspections on Cessna aircraft incorporating your windshields and/or windows. Without a review of your data, our mechanics are unable to comply with FAR 43.13(b) and FAR 43.15(a)(1) and Cessna is unable to state that our Service Manual windshield and window inspection criteria are adequate for your products.

As far as your sending a copy of your letter to each and every Citation Owner/Operator, please be sure to send a copy of this letter as well. Our customers need to understand that Cessna places their safety as our highest priority and our mechanics simply cannot sign off Perkins windshields and windows without reviewing the validity and adequacy of your testing, installation, and certification data.



Perkins technical installer Doug Giles works on windshields that are at the heart of the dispute. Perkins says FAA certification should be good enough for Cessna, which wants more test and safety data.

reply to Cessna's counsel is because he is also concerned about keeping his proprietary information protected. If he is going to send more data to Cessna, he wants a guarantee that Cessna won't use Perkin's data against him.

On January 29, Perkins's lawyer responded to Cessna's Wakefield, summarizing the 1994 offer to submit data and asking for "written procedures maintained by Cessna for approving aftermarket, PMA-approved airframe components installed on Citation aircraft . . ." The letter also included a confidentiality agreement to ensure protection of Perkins's data.

What also bothers Perkins is that the original Quackenbush letter addressed to the Cessna service facilities apparently either was sent or somehow ended up getting passed around to non-Cessna-owned service centers like the one that sent the copy to Perkins. This certainly does not help Perkins's reputation in the marketplace. As of October 1, 2002, Perkins Aircraft had sold 542 main windshields, 394 cockpit side windows, and 753 passenger windows. "We've had the Citation PMA since April 1995," he said. "There has never been an incident of any kind."

As for Citation owners who are stuck at a Citation Service Center with an unairworthy phase inspection sign-off, Perkins said that he will pay to send a technician to inspect and sign off any Perkins windshield that Cessna refuses to inspect. Perkins Aircraft Services is an FAA-approved repair station.

One independent maintenance company that works on Citations is happy with the Perkins windshields. "Perkins has better availability," a manager at this company told **AM**. "And the price is lower. We have been able to reuse the retainers, or use [the new ones]. You can go either way, which is flexibility that Cessna does-

n't give us. It's a much fairer deal for customers. We've installed a lot of them and never had a single problem."

AM did give Cessna opportunity to respond to a list of questions regarding this issue. A Cessna spokeswoman said the company's position is outlined in Wakefield's letter. Cessna's big concern is not in regard to parts, she said. "The question is in regard to airworthiness. Without reviewing the data, we're not capable of determining if the windshield is airworthy. We do review testing on many PMA parts. It's driven by various criteria. The windshield is one of the areas that would be tested. We're saying we need that data from those vendors. It's not that we don't trust FAA standards, or the vendor. We want to see that data. In this case, we haven't seen that. Our first and foremost concern is to produce a safe and reliable aircraft."

While Perkins Aircraft Services and Cessna seem to be stuck swapping lawyers' letters, there is a glimmer of hope for OEMs and companies like Perkins that produce aftermarket parts.

Bombardier's Learjet 60 has an aluminum thrust reverser stang fairing that doesn't last very long. Bombardier is well aware of this problem because it operates a large fleet of Learjet 60s in its FlexJet fractional-share program. These jets fly two to three times as much as a typical corporate jet and any problems that they have most likely appear first in the fractional fleet.

"Bombardier came to us," said John Ackerman, vice president technical services at Atlantic Aero in Greensboro, South Carolina. Atlantic Aero has a dedicated composites repair and manufacturing facility plus 18 engineers and FAA designated alteration station (DAS) authority. "Bombardier said, 'You have a composites shop, can you fix this?' We said, 'Sure.'"

The PMA Advantage

In just 120 days, Atlantic Aero's engineers designed a new Learjet 60 stang fairing made of carbon-fiber, tested it on FlexJet airplanes, and obtained FAA supplemental type certification and a PMA. Bombardier performed a careful audit of Atlantic Aero's facilities. Now, if a Learjet 60 operator calls Bombardier for a new stang fairing and Bombardier doesn't have one in stock, the caller will be referred to Atlantic Aero.

This is an example of how an OEM can work with qualified companies to serve its customers. Bombardier didn't have to pay to develop a new part. Atlantic Aero enjoys Bombardier's stamp of approval, which helps sell its fairings. "We're taking parts where the OEM says, 'Here's a problem, we don't have the money. Would you like to fix it?'" Ackerman added. "It's to the benefit of the customer."

Ackerman has long been involved with operator advisory boards for Learjets and the TFE731 engine. For years, the boards would hear operators complain about various items, and OEMs would make promises about fixing them, but nothing would happen. This was partially because many items were just of too little importance and got ignored in favor of more important OEM issues. Unless, that is, operators volunteered to pony up the funds to cover development. But the OEM rarely, if ever, would consult with companies like Atlantic Aero for solutions that would not only generate income for the developer, but would solve the OEM's problem and make the operator happy, Ackerman said. "Now we're seeing a subtle shift. OEMs are tapping into the tremendous talent out in the field."

Clearly, Ackerman feels Cessna might better serve its customers if it worked with companies like Perkins instead of shunning them. Atlantic Aero specializes in the Citation 500 series, has installed plenty of Perkins windshields, and performs inspections for operators stuck at the Citation service center on the other side of the airport.

"Our great concern is what Cessna is trying to say is that the FAA is wrong and Cessna's right," he said. "It's a big scare tactic being driven by Cessna, and it's profit-motivated. But fortunately, in Greensboro, they can drag it across the street to Atlantic Aero."



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