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**BEFORE THE HOUSE COMMITTEE ON TRANSPORTATION AND  
INFRASTRUCTURE – SUBCOMMITTEE ON AVIATION**

**ON  
THE FEDERAL AVIATION ADMINISTRATION'S OVERSIGHT OF  
OUTSOURCED AIR CARRIER MAINTENANCE**

**MARCH 29, 2007**

Chairman Costello, Congressman Petri and members of the subcommittee, thank you for inviting PASS to testify today on the Federal Aviation Administration's (FAA) oversight of outsourced air carrier maintenance. Professional Airways Systems Specialists (PASS) represents 11,000 FAA employees, including approximately 2,800 Flight Standards field aviation safety inspectors<sup>1</sup> located in 103 field offices in the United States and eight international field offices in the United States, Germany, United Kingdom and Singapore. FAA inspectors are responsible for certification, education, oversight, surveillance and enforcement of the entire aviation system, including air operator certificates, repair station certificates, aircraft, pilots, mechanics, flight instructors and designees.

In recent years, the overall dynamic of the aviation industry has experienced dramatic changes. One such change is airlines increasing their reliance on outsourced maintenance work. According to a 2005 report released by the Department of Transportation Inspector General (IG), the percentage of outsourced maintenance for major air carriers has gone up as much as 24 percent between 2002 and 2004.<sup>2</sup> In addition, the IG said air carriers' use of outsourced repair stations has grown from 37 percent of air carriers' maintenance costs in 1996 to 62 percent in 2005.<sup>3</sup>

PASS and the FAA inspector workforce we represent have serious safety concerns regarding airlines' increasing use of outsourced maintenance and the oversight of this practice by the FAA. Oversight of outsourced air carrier maintenance raises critical safety issues that the FAA needs to begin addressing immediately. PASS will outline significant problems in our testimony, including inadequate inspector staffing; insufficient funding for inspector travel to repair stations; an increasing reliance on a risk-based system, which is diminishing the role of visual inspections to detect safety problems; the quality of the regulations and standards employed at foreign repair stations and the FAA's ability to monitor these repair stations; and the repair station practice of subcontracting out maintenance work to additional facilities, many of which are not certificated by the FAA.

## **Airworthiness Inspectors**

Among their many other responsibilities, airworthiness inspectors are charged with ensuring that maintenance work performed at more than 4,900 certificated repair stations located in the United States and overseas is done in accordance with airline and/or manufacturer instructions and FAA regulations. The airworthiness inspector workforce consists of both avionics and maintenance inspectors, and there are two types of airworthiness inspectors—general aviation and air carrier:

- **General aviation inspectors** oversee both foreign and domestic repair stations and are often responsible for inspecting several repair stations, with one inspector in the Southern Region

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<sup>1</sup> As of February 2007, the FAA lists the number of Flight Standards inspectors as 3,593. This figure, however, includes first line field and office managers; the PASS figure only includes inspectors who actually perform inspection functions in the field.

<sup>2</sup> Department of Transportation Inspector General, *Safety Oversight of an Air Carrier Industry in Transition*, AV-2005-062 (Washington, D.C.: June 3, 2005), p. 8.

<sup>3</sup> Department of Transportation Inspector General, *Observations on FAA's Oversight of Aviation Safety*, CC-2006-074 (Washington, D.C.: September 20, 2006), p. 4.

responsible for oversight of 35 repair stations. When inspecting a repair station, a general aviation inspector examines several important elements, including, among other things, ensuring that the repair station has and is complying with certificate requirements, making sure repair station manuals are FAA acceptable, and examining the maintenance training, tools and equipment. These inspections vary depending on the size and complexity of the repair station, with the time to complete an inspection on a foreign or domestic repair station ranging from a few hours to over a week, not including travel time.

- **Air carrier inspectors** are assigned to a specific air carrier and examine the certificate-specific work on behalf of the air carrier certificate to which they are assigned. An air carrier inspector examines the actual work being done at the air carrier's facilities or a repair station related to their respective air carrier certificate and not the repair station in general. This can include inspecting the aircraft, examining technical data, and looking at housing and facilities. Air carrier inspectors often "spot check" specific areas based upon risk, a process that can take a few hours or several days depending on the area of concern.

All airworthiness inspectors currently rely on visual inspections and data to assist them in conducting oversight of maintenance work completed at a repair station or an air carrier's facility. Following an inspection, both the general aviation and air carrier airworthiness inspectors enter the results of their inspections into specific FAA databases. General aviation inspectors use the Program Tracking Reporting System (PTRS) database, and air carrier inspectors enter information into either the PTRS database or the Air Transportation Oversight System (ATOS) database. This information is then available for all FAA inspectors through the Safety Performance Analysis System (SPAS), enabling inspectors to analyze areas of potential concern.

## **Inadequate Inspector Staffing**

A recent study released by the National Academy of Sciences called attention not only to insufficient inspector staffing but also to the FAA's lack of a viable staffing model to determine whether it has the correct number of skilled individuals in position to accomplish the responsibilities of the job. As noted by the Academy, "The number of aviation safety inspectors employed by the FAA has remained nearly unchanged over the past several years, while aviation industries, especially the commercial air carriers, have been expanding and changing rapidly."<sup>4</sup>

The increased outsourcing of maintenance work has been drawing even more attention to the inspector staffing problem. As the outsourcing business explodes, the number of FAA inspectors has not kept pace; in fact, nearly half of the workforce will be eligible to retire by 2010. Unfortunately, for 2008, the FAA is only requesting funding to hire an additional 87 inspectors<sup>5</sup>

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<sup>4</sup> National Research Council, Committee on Federal Aviation Administration Aviation Safety Inspector Staffing Standards, *Staffing Standard for Aviation Safety Inspectors* (Washington, D.C.: The National Academies Press, 2006), p. 1-4.

<sup>5</sup> Government Accountability Office, *Federal Aviation Administration: Key Issues in Ensuring the Efficient Development and Safe Operation of the Next Generation Air Transportation System*, GAO-07-636T (Washington, D.C.: March 22, 2007), p. 24.

above attrition despite the looming surge in retirements and the fact that it takes two to three years to fully train an inspector.

A prime example of the problems with inspector understaffing and the increasing reliance on outsourced maintenance work is Delta Airlines. Since 2005, Delta has outsourced all of its heavy maintenance work. Inspecting the heavy maintenance work involves a thorough examination of an entire airplane. According to one inspector at the Delta certificate management office (CMO), when this work was performed at the Delta facility, an inspector could oversee the work by traveling a mere seven miles to the Delta facility. Now, inspectors are forced to travel from the CMO in Atlanta to places located hours away, such as Florida, Mexico or, as recently announced by Delta, China. To make matters worse, staffing figures are down considerably at the CMO—after losing four inspectors last year and another two this year with no replacements hired, the CMO is now staffed at 11 airworthiness inspectors with a few additional inspectors at different locations worldwide. Proper oversight cannot be accomplished without enough inspectors.

As the industry continues to change, the agency is making modifications to its processes but not addressing the heart of the problem: there are simply not enough inspectors trained and prepared to oversee the vast amount of maintenance work that is now being outsourced. One of these modifications was the introduction of a more enhanced risk-based oversight approach to outsourced maintenance called the Enhanced Repair Station and Air Carrier Outsourcing Oversight System, which was developed in response to a 2003 IG report. The intention of this system is to allow for a continuous assessment of each repair station in order to focus inspector resources for use in the areas of highest risk. Although the system is a positive step, in reality, it is simply a band-aid fix to a much larger problem. According to inspectors in the field, the system still leaves too many questions unanswered as to how to determine risk. Most importantly, however, even though the system develops a plan to address and prioritize risk, there are just not enough inspectors to cover all the risk.

If the industry is going to escalate outsourcing of critical maintenance work, it is essential to aviation safety that there are enough inspectors to ensure the oversight of this contract maintenance work. As such, PASS is requesting that Congress direct the agency to develop a staffing model for aviation safety inspectors and follow the recommendations outlined in the Academy's study. The Academy's staffing study also emphasized the importance of involving those who are affected by the staffing model in its development, specifically stating that aviation safety inspectors, as well as PASS, should be included in the process from the beginning and remain active participants through the model's design, development and implementation. In addition, the FAA should be required to report to Congress on a quarterly basis on its inspector workforce plan in order to ensure that the agency has an adequate number of inspectors to oversee the industry.

## **Insufficient Funding**

Combined with the low staffing numbers, insufficient funding for travel has a considerable impact on the FAA's ability to perform oversight of repair stations. PASS is hearing from our inspectors of more and more instances in which FAA inspections of major repair stations that perform heavy maintenance work have been cancelled or cut short due to lack of funds.

According to inspectors in the field, the inspection process has become primarily budget driven rather than motivated by safety, a dangerous and shortsighted position for the agency to adopt. Inspectors are often questioned by FAA management as to the necessity of travel expenses needed to reach a location where maintenance is being performed. For example, since overnight travel and compensatory time is infrequently approved, an inspector can drive three to four hours to a repair station, be onsite for approximately an hour, and then drive back in order not to incur time outside the approved shift. An hour onsite to conduct an annual repair station inspection is deemed acceptable to the FAA despite inspector objections and obvious safety risks.

Furthermore, once a problem is detected, the lack of time combined with reduced staffing results in very little follow up to see if the problem has been properly addressed by the repair station. In many instances, if a problem does not require enforcement action, the inspector can only send the repair station a letter, depend on the repair station's response for closure, and wait until the next inspection in order to determine if the issues have been addressed and a long-term solution incorporated. As a result, many inspectors report that they see the same issues visit after visit and year after year.

The following examples illustrate that the FAA is repeatedly allowing budgetary restraints to hamper the work of inspectors:

- According to one inspector in Texas, \$2,400 was requested for four inspectors to perform an inspection of an outsourced maintenance provider that has consistently had problems conforming to regulations. Less than half the money was eventually allotted to the inspection, and only two inspectors were assigned to the repair station, resulting in half the oversight that was originally intended.
- One inspector working at a CMO reveals that the CMO is often forced to use funds set aside for the aging aircraft program<sup>6</sup> to examine an entire repair station.
- Even obtaining funding for travel for short distances proves challenging for inspectors. In one example, it took three months for inspectors in Lincoln, Neb., to gain approval to travel to the western part of the state to perform surveillance activities. The excuse these inspectors were given for the delay was a lack of funding.
- If funding for travel to domestic repair stations is difficult, obtaining the funds to visit a foreign repair station is even more complicated. For example:
  - A recent trip to a repair station in Germany was approved and then cancelled at the last minute when the inspector was told that there was not enough funding to perform the inspection.
  - An inspector responsible for examining outsourced maintenance work performed at repair stations in Singapore, China and Ireland is only able to get to these repair stations *every four or five years.*

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<sup>6</sup> The FAA issued regulations in response to the Aging Aircraft Act of 1991 requiring aircraft to undergo inspections and record reviews by an FAA inspector after the 14th year in service and at specified intervals thereafter to ensure adequate and timely maintenance of an aircraft's age-sensitive components.

- Another inspector responsible for work being performed in Scotland has *never* even been to the repair station.
- Inspectors at another CMO requested a week to conduct surveillance at an overseas repair station. Even though work performed at the repair station required the expertise of avionics and maintenance inspectors, management determined that it would be cheaper to send a single maintenance inspector for a few days and allow that inspector to “sign off” on all of the work.

It is impossible to ensure safe operations at these repair stations if inspectors are rushed in their inspections or prevented from visiting the repair stations altogether. The IG specifically addressed the impact of the lack of resources on the oversight process, concluding that “adequate resources need to be committed to air carrier oversight to ensure the continuity of safe operations, particularly as the airline industry makes significant and ongoing transitions in their operations.”<sup>7</sup>

### **Implementation of the Air Transportation Oversight System (ATOS)**

The Air Transportation Oversight System (ATOS) was developed in 1998 as a “system safety” approach to oversight of the air carrier industry, aiming to ensure that airlines comply with FAA safety requirements and have operating systems to control risks and prevent accidents. The creation of ATOS was a direct result of the 1996 ValuJet accident, in which it was discovered that outsourced maintenance was a causal factor in the accident. ATOS has yet to be fully implemented due to insufficient staffing, inadequate training and a variety of other problems. Yet, the FAA has bold plans to transition the approximately 115 remaining air carriers into the program by the end of 2007, a move that will introduce further challenges for the inspector workforce.

Prioritizing workload based on risk is a valid concept, but there are several problems with ATOS that prevent the agency from benefiting from the system, including the following:

- The transition to ATOS without an adequate number of inspectors is leading to an increasing reliance on statistical analysis rather than a combination of visual inspections and statistical analysis to catch safety problems. As a result, the FAA is reducing the number of actual inspections of all repair stations and airline oversight in general, jeopardizing the margin of safety.
- According to inspectors, the fundamental flaw of ATOS is that it is taking the intuition and experience of inspectors out of the process, inspectors who are trained to hear and see things that are not quantifiable through a database. In many cases, inspectors are spending time analyzing data rather than performing the actual inspection work. Nick Sabatini, the FAA’s associate administrator for Aviation Safety, reinforced this concept for PASS in a recent meeting when he informed us that taking the inspector’s intuition and experience out of the process was intentional.

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<sup>7</sup> Department of Transportation Inspector General, *Safety Oversight of an Air Carrier Industry in Transition*, AV-2005-062 (Washington, D.C.: June 3, 2005), p. 3.

- Since ATOS is a risk-based data-driven system, the quality of the data is obviously extremely important. FAA inspectors are responsible for entering data into the ATOS database based on their inspections. However, due to insufficient inspector staffing and a lack of funding for travel, inspectors are not able to get to the repair stations as often as needed and are therefore not able to enter quality information into the system.
- There is an option in ATOS where, if the resources cannot be provided to complete the work, the inspection is labeled as “Resources Not Available.” This was built into ATOS as a method of identifying resource shortfalls that prevent proper oversight. However, inspectors in the field tell us that instead of letting ATOS generate a list of what needs to be done based on risk and then requesting funding, the system’s data is being manipulated to fit the budget. Inspectors say that managers are often hesitant to use the “Resources Not Available” option since it implies a need for additional funding and may reflect negatively on their performance.

### **Problems With Oversight Performed at Foreign Repair Stations**

There are over 690 foreign repair stations certified by the FAA. FAA inspectors at international field offices are charged with certifying these repair stations and then recertifying them on a yearly or biennial basis. It is important to note that these FAA general aviation inspectors are *not* responsible for inspecting the outsourced maintenance work performed at the repair stations. It is the job of FAA airworthiness inspectors located at CMOs in this country to provide oversight of maintenance work at FAA-certificated foreign repair stations. However, with the current state of the inspector workforce and the tedious and bureaucratic process behind inspecting foreign repair stations, many inspectors say that they are not confident with the level of oversight of foreign repair stations and that serious safety issues are not being addressed.

Inspectors in the field relay several problems associated with traveling to foreign countries to examine repair stations. The process for traveling overseas to inspect a repair station is so labor intensive, often involving State Department coordination and country clearances, that an inspector can wait a month or longer for clearance. When the inspector is finally able to get to the foreign repair station, many times the aircraft slated for inspection has since left or the repair station is fully aware of the visit and the element of surprise is nonexistent, rendering the inspection a simple formality.

Once the inspector has traveled to the repair station, inspecting the repair station or the work performed there introduces additional difficulties, including cultural and language issues, trouble accessing equipment, and inability to examine all processes and services used to complete the maintenance work. In many cases, employees working at foreign repair stations cannot read or speak English; yet, the air carrier and repair station maintenance instructions are usually written in English. Inspectors traveling to foreign locations reveal that training is also a major problem overseas and that they often see maintenance employees working on aircraft without the proper training. For instance, inspectors report that personnel at foreign repair stations do not understand that an item with an expired shelf life cannot be used even if it still appears in good condition.

There is also serious concern over the regulations governing foreign repair stations. For example, as opposed to domestic airline or repair station employees, workers at contract foreign repair stations are not required to pass drug and alcohol tests. In addition, criminal background checks are not required at foreign repair stations. There also continues to be major concerns regarding security at these facilities, with many of the repair stations lacking any security standards. It should go without saying that if a foreign repair station wants to work on U.S.-registered aircraft or any aircraft that operate in this country, those repair stations should be required to meet the same safety standards as domestic repair stations.

Another issue is that the FAA continues to expand the use of bilateral agreements with foreign countries to oversee repair of U.S. carriers. The Bilateral Aviation Safety Agreement with Maintenance Implementation Procedures allows foreign authorities to provide oversight of the work performed at repair facilities without any involvement from FAA inspectors. This eliminates the need for the inspector to travel to the repair station at all and entrusts responsibility entirely to a foreign entity. According to the IG, however, foreign inspectors do not provide the FAA with sufficient information on what was inspected, the problems discovered and how these problems were addressed. The IG goes so far as to state that at least one foreign authority representative said that “they did not feel it was necessary to review FAA-specific requirements when conducting repair inspections.”<sup>8</sup>

### **Use of Non-Certificated Repair Facilities**

“Non-certificated” means that the repair facility does not possess a certificate issued by the FAA to operate under Federal Aviation Regulation Part 145 and is therefore not subject to direct FAA oversight. A certificated repair station meets the standards as outlined in the Federal Aviation Regulation and is therefore subject to direct FAA oversight to ensure that it continues to meet those same standards. The differences in regulatory requirements and standards at the two facilities are extremely troubling. For example, in an FAA-certificated repair station, it is required that there be designated supervisors and inspectors and a training program. These items are not required at non-certificated repair facilities.<sup>9</sup>

Effective oversight of non-certificated repair facilities gained attention in the aftermath of the January 2003 Air Midwest crash in Charlotte, N.C. The National Transportation Safety Board determined that incorrect rigging of the elevator system by a contractor contributed to the accident and pointed to “lack of oversight” by Air Midwest and the FAA.<sup>10</sup> The airline contracted out the work to an FAA-certificated repair station, which then subcontracted to a non-certificated repair facility. Under federal regulations, the airline is ultimately responsible for ensuring that the work is performed in accordance with standards and requirements.

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<sup>8</sup> Department of Transportation Inspector General, *Review of Air Carriers' Use of Aircraft Repair Stations*, AV-2003-047 (Washington, D.C.: July 8, 2003), p. v.

<sup>9</sup> Department of Transportation Inspector General, *Air Carriers' Use of Non-Certificated Repair Facilities*, AV-2006-031 (Washington, D.C.: December 15, 2005), p. 4.

<sup>10</sup> National Transportation Safety Board, *Loss of Pitch Control During Takeoff, Air Midwest Flight 5481, Raytheon (Beechcraft) 1900D, N233YV, Charlotte, North Carolina, January 8, 2003*, Aircraft Accident Report NTSB/AAR-04/01 (Washington, D.C.: 2004), p. x.

A December 2005 IG report called attention to airlines' increasing use of non-certificated repair facilities to perform maintenance work, directing the FAA to improve its oversight of air carriers' use of these facilities. According to the IG, the FAA does not know how many non-certificated maintenance facilities air carriers currently use, but the IG identified "as many as 1,400 domestic and foreign facilities that could perform the same work (e.g., repairing flight control systems and engine parts) a certificated facility performs but are not inspected like certificated facilities. Of those 1,400 facilities, we identified 104 *foreign* non-certificated facilities—FAA had never inspected any of them."<sup>11</sup>

The IG discovered that there are no limitations to the amount of maintenance work non-certificated facilities can provide, and that these facilities are performing far more work than minor services, including much of the same type of work FAA-certificated repair stations perform, such as repairing parts used to measure airspeed, removing and replacing jet engines, and replacing flight control motors. Some of these non-certificated facilities are even performing critical preventative maintenance. The IG identified 21 domestic and foreign non-certificated facilities that performed maintenance critical to the airworthiness of the aircraft. Even more alarming is that the FAA was unaware of the critical work being performed at these facilities.<sup>12</sup>

Despite the fact that these facilities are performing safety-critical work, FAA oversight is practically nonexistent. In other words, these facilities are performing work pivotal to aviation safety with no guarantee that it is being done in line with FAA and air carrier standards. One inspector revealed that he learned of a repair station contracting out work to an automobile facility. Without having the staffing and resources to be able to visit the facility, there was no way for this inspector to ensure that the work was being done according to regulations.

Furthermore, inspectors are discovering numerous incidents involving outsourcing of maintenance for critical functions or "specialized services," an independent rating the FAA grants to some certificated repair stations for specialized and safety-critical functions, such as non-destructive testing, specialized testing of some components, plating, machining and welding. Specialized services, like other maintenance, can and is being contracted out to non-certificated repair facilities. Although recent regulatory changes state that certificated repair stations cannot contract out a specialized service unless they were issued that rating and are required to approve that work for return to service, inspectors have consistently found that it is almost impossible to determine whether that work was done correctly, completely and in accordance with technical data and regulations. Inspectors do not have the time or budget capability to complete all surveillance tasks on certificated repair stations, let alone evaluate and monitor subcontracting to non-certificated facilities.

It is obvious that there must be modifications made regarding air carriers' use of non-certificated repair facilities. PASS believes that the most effective way to correct the disparity between certificated and non-certificated repair facilities is for Congress to require that air carriers outsource maintenance work only to certificated repair stations, a standard that should apply to

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<sup>11</sup> Department of Transportation Inspector General, *Air Carriers' Use of Non-Certificated Repair Facilities*, AV-2006-031 (Washington, D.C.: December 15, 2005), p. 6.

<sup>12</sup> *Id.*, pp. 1 – 2.

both domestic and international facilities. This is a feasible option that will ensure consistency and improved safety within the aviation industry.

## **Conclusion**

Without a doubt, oversight of outsourced maintenance needs serious attention and improvement. With the FAA anticipating an estimated 1 billion passengers per year by 2015, it is clear that more staffing is needed in order to keep up with the rapid growth in the aviation industry. Since the FAA claims that it will be impossible for the inspector workforce to increase at the same rate the aviation industry is changing and expanding, it is moving toward a system-safety approach in which data will be the primary tool to determine risk. PASS believes that it is dangerous to rely heavily on a risk-based approach when it is obvious that our talented and skilled inspector workforce has kept the U.S. aviation system the safest in the world. While the changing aviation environment makes it necessary to focus on anticipating risk in order to benefit from limited resources, it is not an argument against the importance of doing everything possible to raise staffing levels for the inspector workforce. In order to ensure continued safety within the aviation industry, there must be an adequate number of experienced and trained FAA inspectors in place with budgetary and management support to accomplish the agency's mission of safety oversight.

In addition, special attention must be paid to maintenance work performed at foreign repair facilities, which are not required to operate under the same strict guidelines as domestic repair stations. Also, the increasing use of subcontracting to non-certificated facilities is a practice that must be terminated if the FAA is going to continue to promise a safe and efficient aviation system. If the air carriers are going to continue outsourcing important maintenance work, they must be required only to employ certificated repair stations in order to make it possible for an FAA inspector to access the work.

The FAA needs leadership to ensure effective oversight of outsourced air carrier maintenance. It is clear that senior FAA management responsible for surveillance and oversight of air carrier maintenance have not been held accountable. For too long, the FAA has responded to critical reports from the IG and the Government Accountability Office with sophisticated plans but not real action. PASS and the inspector workforce we represent remain solely focused on ensuring the safety of this country's aviation system. We hope that the FAA will seriously examine the conditions surrounding the oversight of outsourced maintenance and realize that major changes need to be made in order to protect this country's reputation as having the largest, safest and most efficient aviation system in the world.