

**Before the Committee on Homeland Security
Subcommittee on Transportation Security and Infrastructure Protection
United States House of Representatives**

For Release on Delivery
Expected at
2:00 p.m. EST
Wednesday
November 18, 2009
CC-2010-005

Actions Needed To Improve Safety Oversight and Security at Aircraft Repair Stations

**Statement of
The Honorable Calvin L. Scovel III
Inspector General
U.S. Department of Transportation**



Madam Chairwoman and Members of the Subcommittee:

We appreciate the opportunity to testify on the Federal Aviation Administration's (FAA) oversight of repair stations. As you know, air carriers have long contracted out maintenance to repair facilities to reduce operating costs or obtain specialized repair services from manufacturers. While the large majority of repair stations are domestic, the number of foreign repair stations that FAA has certified has more than doubled over the past 15 years.

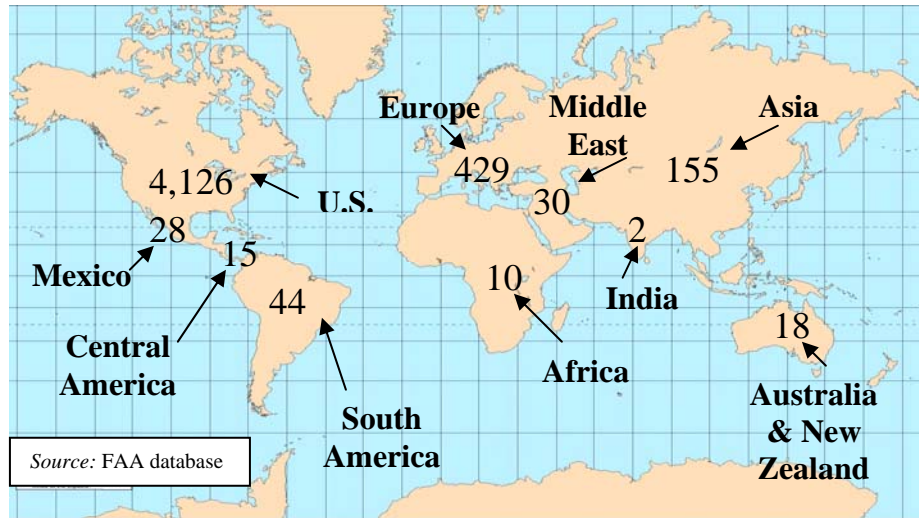
Since 2003, we have consistently found that FAA's oversight of aircraft repair facilities is not robust enough to ensure that outsourced repairs meet FAA standards, and we have made numerous recommendations aimed at improving this oversight. Today, I will focus on two key concerns: (1) significant weaknesses we have identified with FAA's oversight and (2) actions needed to improve safety oversight and security at repair stations.

In summary, safety oversight and security of repair stations cannot be ensured in part because FAA does not know where critical outsourced repairs are being performed—including both certificated and non-certificated facilities. Instead, it relies heavily on air carriers' oversight of repair stations—even air carriers with identified quality assurance problems. Given these weaknesses, a number of actions, including implementing our past recommendations, are needed to improve the safety oversight and security of repair stations.

BACKGROUND

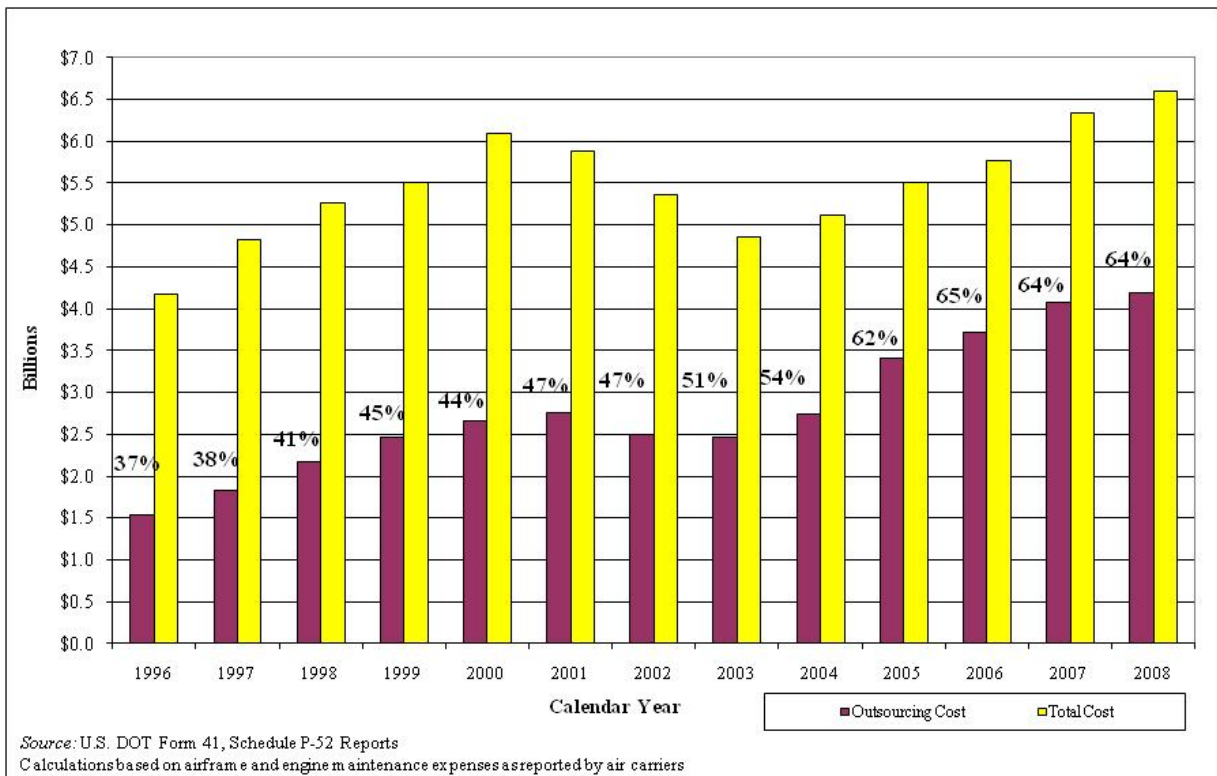
Repair stations conduct a range of repairs and maintenance, from critical components—such as landing gear and engine overhauls—to heavy airframe maintenance checks, which are a complete teardown and overhaul of the aircraft. Currently, there are 4,858 FAA-certificated repair stations, 4,126 of which are located in the United States. Since 1994, the number of FAA-certificated foreign repair stations has increased from 344 to 731. Figure 1 shows worldwide locations of FAA-certificated repair stations.

Figure 1. Locations of FAA-Certificated Repair Stations



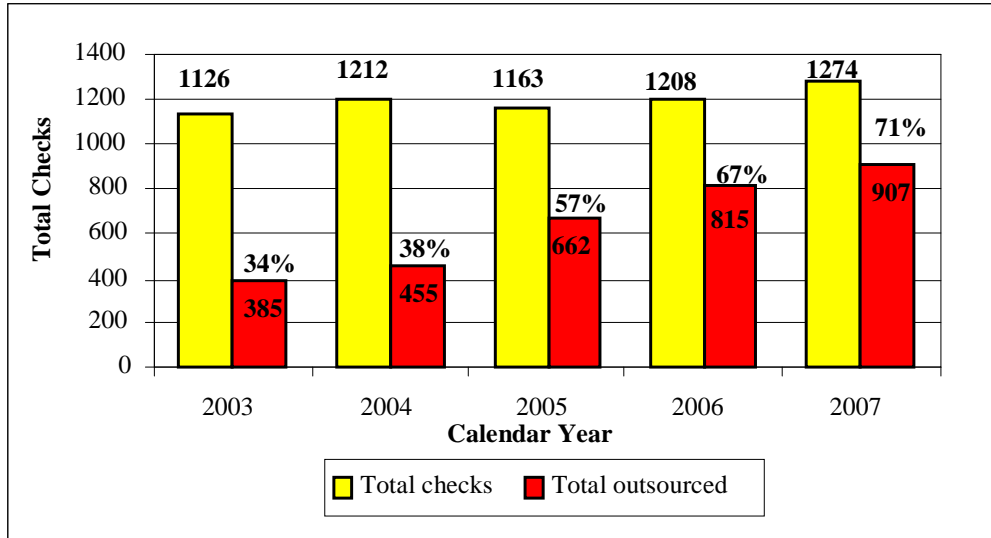
Air carriers' use of repair stations has risen dramatically in the last several years—both in the volume and type of repairs outsourced. As shown in figure 2, between 1996 and 2008, the percentage of outsourced maintenance increased from 37 percent to 64 percent (based on dollars spent). The first two quarters of fiscal year (FY) 2009 indicate that this trend is likely to continue, as 63 percent of maintenance expense was outsourced as of June 2009.

Figure 2. Percentage Increase in Outsourced Maintenance Expense for Major Air Carriers from 1996 to 2008



The nine major air carriers we reviewed sent 71 percent of heavy airframe checks to repair stations in 2007, up from only 34 percent in 2003 (see figure 3). Foreign repair stations performed 27 percent of this work, compared to 21 percent in 2003.

Figure 3. Percentage of Heavy Airframe Maintenance Checks Outsourced for Nine Major Air Carriers, 2003 to 2007



Source: OIG analysis of air carrier data

While FAA oversees repair station safety and operations, the Department of Homeland Security’s (DHS) Transportation Security Administration (TSA) oversees aviation security, including repair stations.¹ To fulfill their statutory obligations, FAA and TSA must collaborate on repair station activity, such as the type of work performed and facility location (airport or non-airport).

FAA’S OVERSIGHT LACKS THE RIGOR NEEDED TO ENSURE THE SAFETY OF OUTSOURCED MAINTENANCE

Consistent with our recommendations, FAA has begun taking a risk-based approach to overseeing repair facilities. Generally, this approach was developed to target FAA’s limited inspector resources to those facilities posing the greatest safety risk. However, FAA lacks the information on certificated and non-certificated facilities to successfully implement such an approach. At the same time, FAA relies heavily on air carriers’ audits to approve repair stations to perform substantial maintenance—even air carriers with identified quality assurance problems. These weaknesses undermine FAA’s efforts to target surveillance to high-risk areas.

¹ In 2003, TSA was transferred from the Department of Transportation (DOT) to DHS.

FAA Lacks the Data and Processes To Identify Facilities That Perform Critical Repairs

In 2003, we reported² that despite the growth in outsourcing, FAA's oversight continued to target air carriers' in-house facilities—even when high volumes of repairs, including critical maintenance, were outsourced. For example, in 2002, FAA completed 400 in-house maintenance inspections for 1 air carrier but only 7 inspections of its outsourced maintenance, which comprised 44 percent of the carrier's maintenance costs that year.

FAA has been challenged to shift its oversight to external facilities because it lacks the data and processes for identifying and tracking the types of maintenance outsourced and the facilities air carriers use. For example, air carriers are required to provide and FAA must approve substantial maintenance providers—repair stations that can conduct major repairs on an air carrier's aircraft. However, the list does not always represent the facilities air carriers actually use or show the quantity of work they send to each facility. In one example, we found a foreign repair station was designated a “substantial maintenance provider” for a major U.S. carrier even though it had not conducted any significant maintenance for the air carrier in almost 3 years.

In 2003 and in 2008,³ we recommended that FAA determine what type of repairs air carriers send to repair stations and which repair stations carriers use the most. In response, FAA set up a system⁴ for air carriers and repair stations to report outsourced repairs. However, the system is unreliable because it is based on voluntary reporting—both for volume of repairs and locations of critical repairs. Moreover, FAA inspectors do not validate the reported data. As a result of these weaknesses, FAA cannot determine the type of repairs air carriers outsource or the facilities they use and target its oversight accordingly.

Non-Certificated Repair Facilities Perform Critical Maintenance With Little FAA Oversight and Often Without FAA's Knowledge

FAA regulations permit air carriers to use non-certificated repair facilities as long as the mechanics approving the repairs are certificated and the air carrier oversees the work performed. However, as we reported in December 2005,⁵ the use of non-certificated repair facilities can also create safety vulnerabilities. Because these facilities do not operate under FAA repair station certificates, they are not required to comply with associated regulatory and quality control standards. For example, non-certificated facilities are not bound by FAA operating requirements, such as maintaining a quality control system. Unlike domestic certificated repair stations,

² OIG Report Number AV-2003-047, “Review of Air Carriers' Use of Aircraft Repair Stations,” July 8, 2003. OIG reports and testimonies are available on our website: www.oig.dot.gov.

³ OIG Report Number AV-2008-090, “Air Carriers' Outsourcing of Aircraft Maintenance,” September 30, 2008.

⁴ The system, known as the Quarterly Utilization Report, was developed by FAA in FY 2007.

⁵ OIG Report Number AV-2006-031, “Review of Air Carriers' Use of Non-Certificated Repair Facilities,” December 15, 2005.

there is no requirement for non-certificated repair facilities to employ supervisors and inspectors to monitor maintenance work as it is being performed. Non-certificated repair facilities are also not required to have an aircraft hangar in which to operate. In fact, of the 10 non-certificated repair facilities we visited, 2 were operated by only 1 mechanic with a truck and basic tools.

In addition to not being bound by FAA operational requirements, non-certificated facilities can perform a vast array of scheduled⁶ and critical repair work, including engine replacements. When we reported this finding in 2005, FAA was unaware that domestic and foreign non-certificated facilities performed the same type of work as FAA-certificated repair stations—not just minor aircraft work on an as-needed basis, as was widely believed. We examined records at 3 air carriers and identified 6 domestic and foreign non-certificated facilities that performed scheduled maintenance and 21 that performed maintenance critical to the airworthiness of the aircraft.⁷

Despite these vulnerabilities, neither FAA nor air carriers regularly conduct on-site reviews of non-certificated facilities. In fact, FAA had not inspected 6 of the 10 domestic and foreign non-certificated facilities we reviewed. According to FAA, the quality of repair work at non-certificated facilities is ensured because the mechanics at these facilities hold FAA certificates. However, as we reported in 2005, some mechanics at these facilities are also temporary personnel and neither the carrier nor FAA ensures that their work meets FAA standards. Moreover, repair station certification involves additional controls to ensure repairs are performed properly. Specifically, certificated facilities have approved quality control systems, undergo multiple levels of oversight, and have recurring training programs. It is incumbent upon FAA to determine which non-certificated facilities perform critical and scheduled maintenance⁸ so that it can target inspections accordingly or limit the type of work these facilities can perform.

FAA Relies on Air Carriers With Known Quality Assurance Problems To Provide Oversight of Repair Stations

Last year, we reported that FAA does not specify how its air carrier inspectors should gather information needed to approve FAA-certificated repair stations to perform substantial maintenance. Instead, FAA allows inspectors to use an air carrier's initial audit as a basis for approval even when inspectors determined that the carrier's audit processes and quality assurance programs had problems, such as limited quality assurance staff and inaccurate reporting of audit findings.

⁶ This maintenance is required to be performed at regularly scheduled times, such as inspections required after the aircraft has flown a designated number of hours (e.g., inspections of crew and passenger oxygen, aircraft fuselage, wings, and engines).

⁷ "Airworthiness" means the aircraft conforms to its approved design and is in a condition for safe operation.

⁸ Gathering data on locations and carrier use of non-certificated facilities is possible, as we were able to do so by conducting a detailed analysis of air carrier maintenance vendor lists.

We found it may be months or even years before FAA inspectors do an on-site review after FAA has approved a repair station for carrier use. For example, over a 3-year period, FAA inspectors for an air carrier inspected only 4 of its 15 substantial maintenance providers. Among those uninspected was a major foreign engine repair facility. The inspectors did not visit this facility until 5 years after FAA approved this facility for carrier use although the repair station had worked on 39 of the 53 engines repaired for the air carrier.

As a result of FAA's flawed approval and untimely inspection processes, maintenance problems either went undetected or reoccurred. For example, FAA inspectors relied on 1 carrier's initial audit report to approve a repair station for use, but they later found during a site visit that more than 100 mechanics had not received specialized maintenance training prior to working on the carrier's aircraft. At other repair stations that did not receive timely FAA inspections, problems existed such as untrained mechanics, lack of required tools, and unsafe storage of aircraft parts. While these problems were not immediate safety-of-flight issues, they could have affected aircraft safety over time if left uncorrected.

ACTIONS NEEDED TO IMPROVE THE SAFETY OVERSIGHT AND SECURITY OF REPAIR STATIONS

Several of our recommendations aimed at improving FAA's oversight of foreign and domestic repair stations remain open. Successfully implementing these recommendations would allow FAA to identify and target repair facilities in need of safety oversight as well as meet its statutory mandate to provide TSA with information needed to improve security oversight.

Recommendations To Improve FAA Oversight of Repair Stations Remain Unaddressed

Over the last 7 years, we have made a total of 23 recommendations intended to improve FAA's safety oversight of domestic and foreign repair stations; 16 of these recommendations remain unaddressed (see exhibit)—a number of which are critical. FAA made progress by implementing seven of the nine recommendations we made in 2003, including improved inspection processes for foreign authorities overseeing FAA-certificated facilities. However, the two that remain open from that report are ones that, if implemented, would help FAA target its oversight resources to facilities with the greatest safety risk. We also made seven recommendations in 2005 to improve oversight of non-certificated facilities, but FAA has yet to propose actions to address them.

While FAA has proposed actions for each of the seven recommendations we made in 2008, it has yet to complete any of them, including those that are relatively straightforward and key to implementing other improvements. For example, FAA has

not reassessed its definition of substantial maintenance⁹ to include all critical components, such as landing gear. We reported that omissions such as these can lead to wide disparities in air carriers' reports of locations performing repairs of critical components, which in turn limits FAA's ability to assess risk.

Some actions that FAA has taken to address our recommendations are insufficient, including its voluntary system for reporting outsourced repairs, which has not provided reliable or FAA-validated data. FAA agreed to improve its reporting system by March 2009, but the completion date has slipped repeatedly. Completing this recommendation would also help FAA address other longstanding issues, such as locating non-certificated facilities performing critical repairs and improving their quality controls.

FAA states it will implement other recommendations by December 31, 2009, pending inspector and industry responses on redefining substantial maintenance. However, given that FAA has taken little action to date, it is questionable how it will implement these recommendations as planned. We will continue to monitor FAA's progress in effectively implementing all recommendations.

FAA Must Identify Critical Maintenance Locations To Effectively Collaborate With TSA in Improving Security at Repair Stations

In addition to the safety oversight gaps we have reported, we have identified security vulnerabilities at repair stations located at commercial and general-aviation airports and off-airport property. We issued a report in 2003¹⁰ disclosing these vulnerabilities and recommended that TSA and FAA assess repair stations to identify the greatest security risks—including susceptibility to sabotage—and develop security programs appropriate to the significance and criticality of the work performed. Implementing effective security programs will be a challenge for both TSA and FAA because foreign facilities are not subject to U.S. security requirements. The level and depth of security programs in other countries, including background checks, are subject to government requirements in the country where the repair station operates.

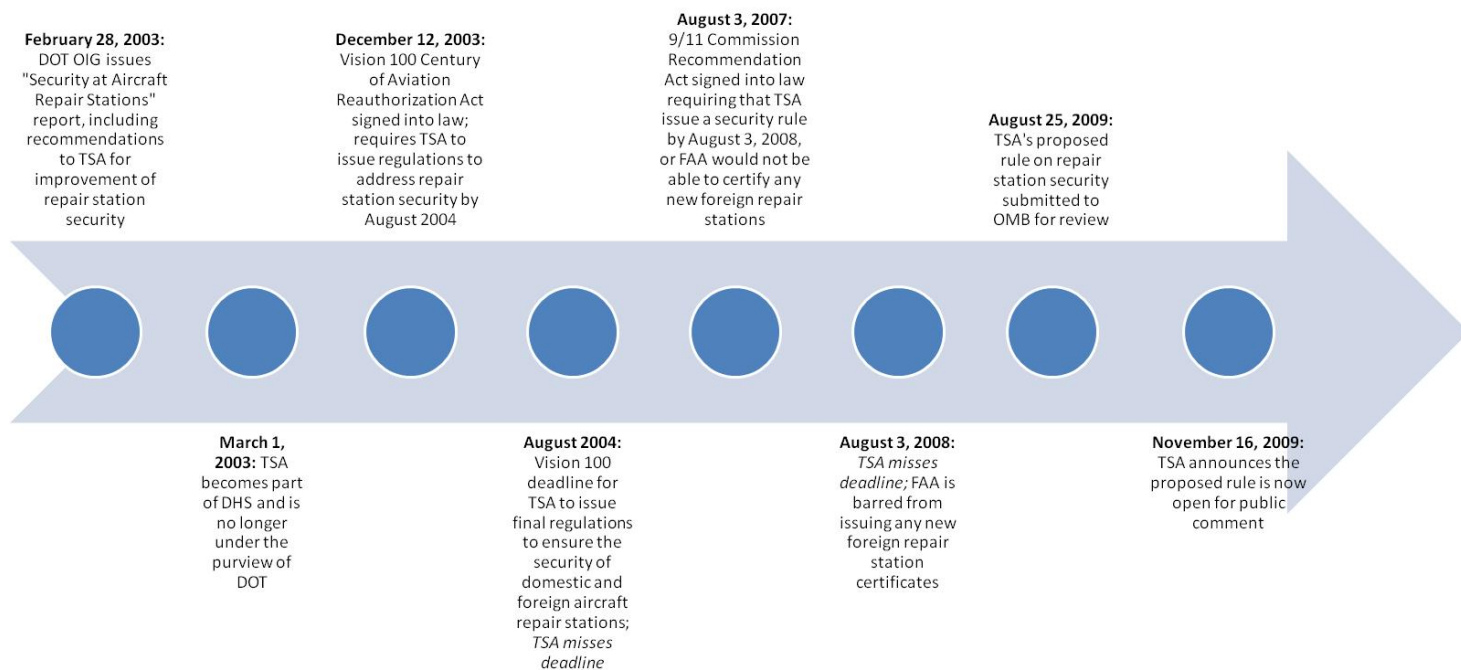
Due in part to our recommendations in 2003, Congress enacted FAA's 2003 Vision 100 Century of Aviation Reauthorization (Vision 100),¹¹ which mandated TSA to complete large-scale security reviews of FAA-certificated foreign repair stations and issue final regulations by August 2004 to improve the security of foreign and domestic repair stations. TSA did not meet the 2004 deadline (see figure 4).

⁹ FAA inspection guidance defines substantial maintenance as major airframe maintenance checks; significant engine work; major alterations or major repairs to airframes, engines, or propellers; emergency equipment repairs; and aircraft painting.

¹⁰ OIG Report, "Review of Security at Aircraft Repair Stations," February 28, 2003.

¹¹ Pub. L. No. 108-176 (2003).

Figure 4. Legislative Timeline



In the August 2007 9/11 Commission Recommendation Act, Congress included a provision that if TSA did not issue a repair station security rule by August 2008, FAA would be barred from certifying any new foreign repair station.¹² Again, TSA was not able to meet the deadline, and FAA was barred from certifying any new foreign repair stations. However, TSA announced on November 16, 2009, that its proposed rule is now open for public comment.

Pending Legislation Would Address Regulatory Gaps in Oversight of Foreign Repair Stations

Congress is introducing new bills to close other regulatory gaps between foreign and domestic repair stations that we have identified in our past work. While FAA verifies that approved repair stations have the equipment, personnel, and inspection systems to ensure that repairs are completed according to FAA standards, the repair stations are under the regulatory control of the government of the country in which they are located. As a result, there are some regulatory differences between domestic and foreign repair stations (see table 1).

¹² H. Rep. No. 1, section 1616(a) (2007).

Table 1. Differences Between Domestic and Foreign FAA-Certificated Repair Stations

Domestic	Foreign
Duration of FAA Certificate	
Certificate lasts indefinitely	Certificate must be renewed every 1 to 2 years
Fees for Certification	
None	Pay FAA for certification and renewal costs
Drug and Alcohol Testing Program	
Required	Not required
Certificated Mechanics	
Certain personnel, such as return-to-service and supervisory personnel, must be FAA-certificated	Personnel are not required to be FAA-certificated <i>(Note: Personnel must meet certain training and qualification requirements. Mechanics may be certificated by the aviation authority where they are located.)</i>

Note: For domestic and foreign non-certificated facilities, the personnel approving repairs must be FAA-certificated.

The pending House and Senate FAA reauthorization bills contain language requiring drug and alcohol testing of employees in foreign FAA-certificated repair stations. The House bill also contains language to harmonize the safety standards between foreign and domestic repair stations, including standards governing maintenance requirements, education and licensing of maintenance personnel, training, oversight, and mutual inspection of work sites. If passed, these bills will provide for greater consistency in rules governing repair station operations.

In conclusion, Madam Chairwoman, with the growing trend in outsourcing aircraft repairs, it is imperative that FAA improve its oversight of repair facilities—both domestic and foreign—to ensure that safety measures are being adequately applied to affected carriers. Expeditiously implementing our longstanding recommendations would go a long way toward ensuring safety.

EXHIBIT. FAA'S ACTIONS TO ADDRESS OIG RECOMMENDATIONS

Recommendations: 2003 Review of Air Carriers' Use of Aircraft Repair Stations		FAA Propose Action?	FAA Complete Action?
1	Collect and monitor air carrier maintenance financial data to identify trends in the source of maintenance and make shifts in inspector resources as warranted.	Yes	No
2	Develop a process to (a) identify repair stations that air carriers use to perform aircraft maintenance; (b) identify the repair stations that are performing safety critical repairs; and (c) target inspector resources based on risk assessments, or analysis of data collected on air carrier outsourcing practices.	Yes	No
3	Implement procedures to improve information sharing through FAA's newly integrated Safety Performance Analysis System by (a) requiring certificate management inspectors to document the name of the repair stations they have reviewed in the Air Transportation Oversight System database; and (b) requiring district office inspectors to include the areas inspected, the results, and corrective actions taken in the Program Tracking and Reporting System.	Yes	Yes
4	Develop a comprehensive, standardized approach to repair station surveillance by requiring inspectors to review all aspects of repair station operations, from the time the repair is received until it is released to the customer.	Yes	Yes
5	Modify existing inspection documentation requirements with foreign aviation authorities so that FAA receives sufficient documentation to ensure FAA-certificated repair stations meet FAA standards.	Yes	Yes
6	Develop a process to capture results from (a) foreign aviation authority inspections and (b) FAA sample inspections of foreign repair stations in FAA's Program Tracking and Reporting System.	Yes	Yes
7	Develop procedures to verify that foreign aviation authorities place adequate emphasis on FAA regulations when conducting reviews at FAA-certificated facilities.	Yes	Yes
8	Clarify requirements with foreign aviation authorities to ensure that changes to FAA-certificated foreign repair stations' operations that directly impact FAA requirements are sent to FAA for approval.	Yes	Yes
9	Modify procedures for conducting sample inspections to permit FAA inspectors to (a) conduct the number of inspections necessary to gain assurance that foreign aviation authority inspections meet FAA standards during the initial implementation periods when foreign authorities conduct inspections on FAA's behalf; and (b) base the number of inspections in subsequent years on analysis of data collected from prior sample inspections.	Yes	Yes

Note: The recommendations from our 2003 security report are not listed in this exhibit because TSA, not FAA, is now responsible for those issue areas.

Recommendations: 2005 Review of Air Carriers' Use of Non-Certificated Repair Facilities		FAA Propose Action?	FAA Complete Action?
1	Inventory air carrier vendor lists that include all maintenance providers working on air carrier aircraft and identify non-certificated repair facilities performing critical or scheduled maintenance.	No	No
2	Determine whether it should limit the type of work non-certificated facilities can perform.	No	No
3	Expand its maintenance oversight program to include non-certificated repair facilities if no limitations are placed on the type or scope of work they perform.	No	No
4	Review air carrier training programs as part of FAA's oversight of air carrier operations to ensure mechanics at non-certificated repair facilities (a) are qualified to maintain aircraft in accordance with FAA and air carrier requirements, and (b) receive training for critical repairs that is equivalent to the training provided to air carrier mechanics performing the same type of repairs.	No	No
5	Review air carrier training programs to ensure mechanics at non-certificated repair facilities have been adequately trained on preparing maintenance records in accordance with FAA and air carrier procedures.	No	No
6	Review air carriers' audit programs for non-certificated repair facilities as part of its oversight of air carrier operations to ensure each carrier has established a standard and in-depth process for evaluating these facilities.	No	No
7	Determine whether air carriers evaluate the background, experience, and qualifications of the temporary maintenance personnel used by contractors to ensure the work they perform is completed in accordance with FAA and air carrier requirements.	No	No

Note: FAA concurred with our 2005 report recommendations but has not proposed corrective actions.

Recommendations: 2008 Review of Air Carriers' Outsourcing of Aircraft Maintenance		FAA Propose Action?	FAA Complete Action?
1	Improve its maintenance data reporting system by (a) revising its guidance to include all maintenance providers performing repairs of critical components, not just the top 10 substantial maintenance providers and (b) developing procedures for inspectors to validate the accuracy and consistency of reports.	Yes	No
2	Require CMO inspectors to conduct (a) initial baseline inspections of substantial maintenance providers to assess whether the maintenance providers are in compliance with air carriers' procedures and (b) follow-up inspections to determine whether this baseline assessment has changed.	Yes	No
3	Reassess its definition of substantial maintenance to include critical components and ensure that air carriers and FAA offices consistently apply the definition.	Yes	No
4	Require inspectors to (a) follow up to verify that deficiencies identified by air carriers have been corrected at repair stations and (b) ensure that air carriers and repair stations have adequate processes for conducting audits, correcting identified deficiencies, and performing trend analyses of findings.	Yes	No
5	Develop controls to ensure inspectors are complying with inspector guidance to document their findings in FAA's inspection database and review the inspection database for previous findings.	Yes	No
6	Ensure air carriers document inspections conducted by air carriers' on-site technical representatives at heavy airframe maintenance providers.	Yes	No
7	Encourage the industry best practice of using airworthiness agreements between air carriers and repair stations that more clearly define maintenance procedures and responsibilities.	Yes	No