

**Before the Committee on Transportation and Infrastructure
United States House of Representatives**

For Release on Delivery
Expected at
10:00 a.m. EDT
Thursday
April 3, 2008
CC-2008-046

Actions Needed To Strengthen FAA's Safety Oversight and Use of Partnership Programs

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



Mr. Chairman, Ranking Member Mica, and Members of the Committee:

We appreciate the opportunity to testify today on the Federal Aviation Administration's (FAA) oversight of airlines and the effectiveness of the Agency's regulatory partnership programs. As this Committee is aware, safety is a shared responsibility among FAA, aircraft manufacturers, and airlines. Together, all three form a series of overlapping controls to keep the system safe. FAA safety inspectors are on the front lines and play a critical role by ensuring compliance with FAA rules and regulations.

At the request of this Committee, we are reviewing FAA's handling of whistleblower concerns regarding Southwest Airlines' (SWA) failure to follow a critical FAA airworthiness directive (AD). Our testimony today is based on our ongoing work and prior audits of related issues at other carriers. Today, we will note breakdowns in three areas of FAA oversight that contributed to this event and illustrate the potential for system-wide weaknesses. Specifically, FAA's: (1) partnership programs with air carriers, (2) national program for risk-based oversight, and (3) internal reviews and handling of employees who report safety concerns. We have identified key changes that FAA must make to its oversight programs to address these areas. Before I discuss these issues further, it is important to note the events that led to today's hearing.

The FAA directive¹ in this case required SWA to inspect the fuselages of its Boeing 737s for potential cracks. FAA issued this directive after an Aloha Airlines 737 lost a major portion of its hull while in flight at 24,000 feet in 1988, resulting in one fatality and multiple injuries. According to FAA, when an air carrier determines that it has not implemented an AD, it is required to immediately ground all non-compliant aircraft. FAA inspectors share this responsibility—if an inspector becomes aware that an air carrier has violated the terms of an AD, the inspector is required to ensure that the aircraft are grounded.

To meet this requirement, air carriers need a system to help them perform repetitive inspections of aircraft fuselages in a timely manner. However, we found that SWA did not have an adequate system to ensure it completed these inspections. As a result, SWA operated 46 aircraft that were not inspected for fuselage cracks. These aircraft flew in violation of the AD on over 60,000 flights for up to 9 months (see exhibit A). We estimate that these aircraft carried 6 million passengers during this period.

According to SWA, it discovered it had violated this directive on March 14, 2007. SWA notified an FAA principal maintenance inspector (PMI) the following day. However, the inspector did not direct SWA to ground the affected planes, and SWA

¹ FAA Airworthiness Directive 2004-18-06 requires that Boeing 737s (series 200, 300, 400, and 500) be inspected for fuselage cracks every 4,500 cycles (1 cycle equals 1 take-off and landing) after they reach 35,000 cycles.

continued to operate them on 1,451 flights for 9 more days, carrying an estimated 145,000 passengers.

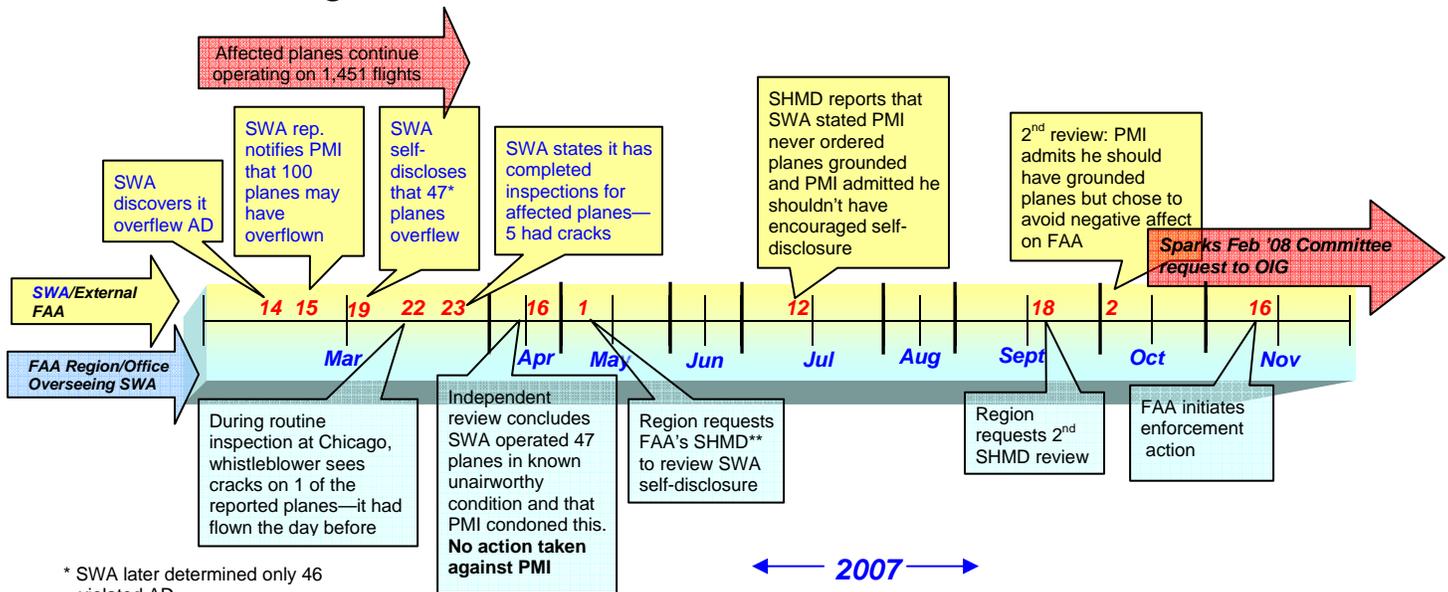
The PMI permitted—and encouraged—SWA to formally self-disclose the AD violation through its Voluntary Disclosure Reporting Program (VDRP), which would allow the airline to avoid any penalties. FAA accepted the self-disclosure, even though it had already accepted multiple disclosures on AD violations—this should have prompted concerns regarding whether underlying problems were corrected.

Once it formally self-disclosed the violation on March 19, SWA stated that it was in compliance with the AD, meaning it had inspected or grounded all affected aircraft. However, two FAA inspectors (the whistleblowers in this case) reported that their supervisor, the PMI, had knowingly permitted SWA to continue flying the identified aircraft even after SWA’s self-disclosure. SWA officials confirmed this and stated that the PMI gave them verbal permission to continue flying the aircraft.

During our review, we found that—after SWA self-disclosed the overflight—several of these aircraft flew into airports multiple times where they could have received the required inspections. When SWA finally inspected the aircraft, it found fuselage cracks in five of them. The AD specifies that these cracks could potentially lead to fuselage separation and rapid aircraft depressurization if left in disrepair.

While these critical safety lapses indicate problems with SWA’s ability to comply with safety directives, they are symptomatic of much deeper problems with FAA’s oversight (the timeline below shows the events of the SWA disclosure and FAA actions).

Figure 1. Timeline of SWA Disclosure and FAA Actions



* SWA later determined only 46 violated AD.
 **Security and Hazardous Materials Division

We found that FAA’s Southwest inspection office developed an overly collaborative relationship with the air carrier, which allowed repeated self-disclosures of AD violations through its partnership program. Partnership programs are intended to facilitate collaboration between FAA and air carriers to identify and address safety issues. Yet, FAA allowed SWA to repeatedly self-disclose AD violations without ensuring that SWA had developed a comprehensive solution for reported safety problems—which is required for FAA to accept the disclosure and absolve the carrier of any penalty.

However, SWA’s proposed solutions, which FAA has repeatedly accepted, have failed to solve AD compliance issues, as it has violated four different ADs eight times since December 2006, including five in 2008. FAA’s oversight in this case appears to allow, rather than mitigate, recurring safety violations.

FAA maintains that disclosure programs are valuable, as they can help to identify and correct safety issues that might not otherwise be obtainable. However, we are concerned that FAA relies too heavily on self-disclosures and promotes a pattern of excessive leniency at the expense of effective oversight and appropriate enforcement. Further, a partnership program that does not ensure carriers correct underlying problems is less likely to achieve safety benefits.

Our ongoing work at another carrier has identified concerns with employees using disclosures to avoid penalties for safety violations. FAA must take steps to maintain the safety objective of these programs by actively discouraging improper relationships between inspection offices and carriers so that these programs do not lapse into an easy amnesty path for perpetual safety violators.

We also found that the events of SWA demonstrate weaknesses in FAA’s national program for risk-based oversight—the Air Transportation Oversight System (ATOS). This allowed AD compliance issues in SWA’s maintenance program to go undetected for several years. As early as 2003, one of the whistleblowers expressed concerns to FAA about SWA’s compliance with ADs. In 2006, he began urging FAA to conduct system-wide reviews, but FAA did not begin these reviews until after the details of the March 2007 disclosure became public.

In fact, FAA inspectors had not reviewed SWA’s system for compliance with ADs since 1999. At the time of the SWA disclosure, 21 key inspections were overdue for at least 5 years. As of March 25, 2008, five of these were overdue for nearly 8 years.

We have previously identified system-wide problems with ATOS. For example, in 2002,² we found inconsistent inspection methods across FAA field offices for various carriers. As a result, FAA inspectors were confused over how to conduct ATOS

² OIG Report Number AV-2002-088, “Air Transportation Oversight System,” April 8, 2002. OIG reports and testimonies are available on our website: www.oig.dot.gov.

inspections and assess risks. In 2005,³ we found that inspectors did not complete 26 percent of planned ATOS inspections—half of these were in identified risk areas. We recommended, among other things, that FAA strengthen its national oversight and accountability to ensure consistent and timely ATOS inspections. However, FAA still has not fully addressed our recommendations.

Further, our ongoing work and 2005 audit⁴ at Northwest Airlines have identified weaknesses in FAA’s processes for conducting internal reviews, ensuring corrective actions, and handling employees who report safety concerns. In the SWA case, FAA’s internal reviews found as early as April 2007 that the PMI was complicit in allowing SWA to continue flying aircraft in violation of the AD. Yet, FAA did not attempt to determine the root cause of the safety issue, nor initiate enforcement action against the carrier until November 2007. At Northwest, FAA’s reviews of an inspector’s safety concerns were limited and overlooked key findings identified by other inspectors. Although some of the inspector’s safety concerns were valid, FAA informed him that all of his concerns lacked merit.

We also have concerns regarding FAA’s failure to protect employees who report safety issues from retaliation by other FAA employees. For example, in the SWA case, after one whistleblower voiced his concerns to FAA, an anonymous hotline complaint was lodged against him. According to the inspection office manager, the PMI indicated that a SWA representative submitted the complaint. The complaint was non-specific and never substantiated, but the whistleblower was removed from his oversight duties for 5 months while he was being investigated. Yet, FAA did not suspend other inspectors who were subjects of similar complaints, including the PMI, who admitted that he allowed SWA to continue flying in violation of the AD.

Our work at Northwest Airlines found the same problem with FAA’s handling of the inspector who reported safety concerns. As with the inspector in the SWA case, FAA managers reassigned an experienced inspector to office duties, after a complaint from the airline, and restricted him from performing oversight on the carrier’s premises. Both the SWA and Northwest cases demonstrate that FAA must pursue a more reliable internal review process and protect employees that bring important safety issues to light.

Recently, FAA announced several actions to address the SWA safety directive violation. These include initiating a review of AD compliance at SWA and other air carriers. FAA also proposed to fine SWA over \$10 million.

³ OIG Report Number AV-2005-062, “FAA Safety Oversight of an Air Carrier Industry in Transition,” June 3, 2005.

⁴ OIG Report Number AV-2007-080, “FAA’s Actions Taken To Address Allegations of Unsafe Maintenance Practices at Northwest Airlines,” September 28, 2007.

While FAA’s actions are necessary, albeit long overdue, the issues we have identified will require immediate and comprehensive changes in FAA’s air carrier oversight programs. These actions include the following:

- Establishing an independent organization to investigate safety issues identified by its employees.
- Periodically rotating supervisory inspectors to ensure reliable and objective air carrier oversight.
- Revising its VDRP guidance to require inspectors to (a) verify that air carriers take comprehensive actions to correct the underlying causes of violations identified through self-disclosure programs and (b) evaluate, before accepting a new report of a previously disclosed violation, whether the carrier developed and implemented a comprehensive solution.
- Implementing a process for secondary review of self-disclosures before they are accepted and closed—acceptance should not rest solely with one inspector.
- Revising its post-employment guidance to require a “cooling-off” period when an FAA inspector is hired at an air carrier that he or she previously inspected.
- Implementing a process to track field office inspections and alert the local, regional, and Headquarters offices to overdue inspections.
- Developing a national review team that conducts periodic reviews of FAA’s oversight of air carriers.

I would now like to discuss these issues in further detail.

Repeated Acceptance of Self-Disclosures Involving AD Violations Demonstrates Problems With FAA's Implementation of Partnership Programs

Safety partnership programs, such as the Voluntary Disclosure Reporting Program used by SWA to report the AD non-compliance, are intended to permit FAA and air carriers to collaboratively identify and address safety issues. The Aviation Safety Action Program (ASAP) is another partnership program that FAA uses to obtain safety data from aviation employees. We are reviewing FAA's implementation of this program at various carriers and have identified problems that FAA will need to address to strengthen this program. Such programs, if properly implemented, can add value by identifying issues that might not otherwise come to light.

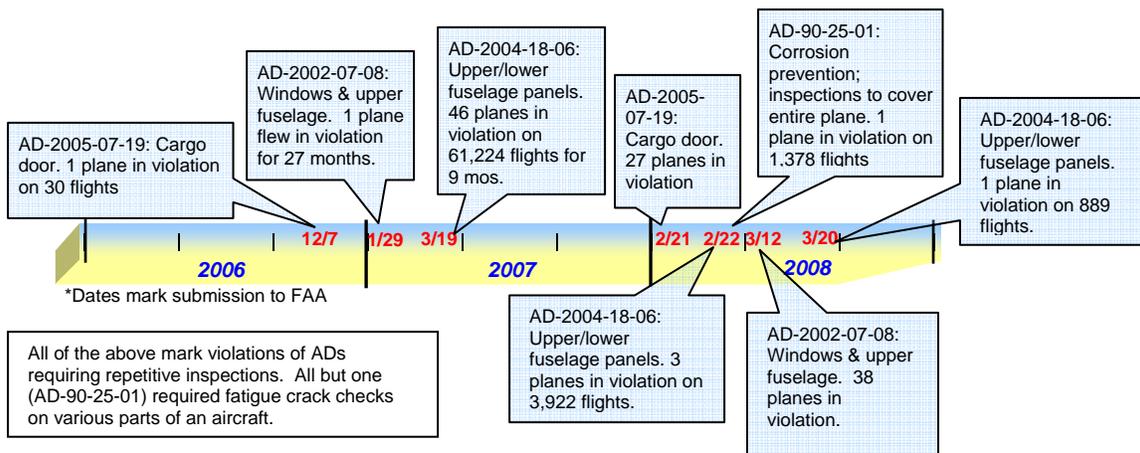
A fundamental principle of these partnership programs is that the company or person submitting the disclosure receives immunity from enforcement action. However, FAA guidance states that, in order for an inspector to accept a self-disclosure from a carrier, the carrier must propose and implement comprehensive fixes to correct the root causes of identified safety problems and prevent recurrence. We support the concept of self-disclosure programs and recognize the challenge they present to FAA—carefully balancing a collaborative relationship with effective oversight and appropriate enforcement actions.

In this case, we found that FAA's inspection office for SWA (the Certificate Management Office, or CMO) developed an overly collaborative relationship with the air carrier, which allowed repeated self-disclosures of AD violations. FAA accepted these without requiring the carrier to correct the underlying deficiencies in its AD management program. These actions contradict FAA's guidance and illustrate that a partnership program that does not ensure underlying problems are corrected is less likely to achieve the objective of improving the margin of safety.

As shown in figure 2, we found that SWA had violated and self-disclosed at least four different ADs eight times since December 2006. Data were not readily available to us to analyze self-disclosures before December 2006.

On March 20, 2008—less than 2 weeks ago and over a year after SWA disclosed the AD overflight—SWA discovered that another aircraft had violated the same AD (2004-18-06) that it reported as overflown in March 2007. SWA discovered this because we requested that it validate its previously provided information on the overflight. This discovery further demonstrates deficiencies in SWA's system for monitoring inspection requirements. It also illustrates that FAA's review of the March 2007 AD violation was incomplete.

Figure 2. Eight SWA Aging Aircraft AD Violations



FAA accepted *five of the eight* violations shown above into the VDRP—including the March 19, 2007, violation. FAA did recently reject two self-disclosures (February 22, 2008, and March 12, 2008) since they were related to the highly publicized AD on fuselage cracks that it had already accepted. FAA has not provided information on how it will address the most recent AD violation (see exhibit B).

In addition to the ADs referenced above, on March 20, 2007, the PMI accepted a self-disclosure from SWA indicating the carrier overflow a maintenance inspection on the stand-by rudder system for 70 Boeing 737 aircraft. This overflight is yet another example of the critical need for FAA to ensure that SWA corrects shortcomings in its maintenance program.

FAA Did Not Follow Its Own Criteria for Self-Disclosures

FAA requires air carriers to have a system in place to ensure compliance with ADs. Repeated AD violations demonstrated that, at best, SWA needs to strengthen its maintenance system to meet FAA requirements and provide reasonable assurance of compliance with FAA safety directives. Even though FAA requires that self-disclosures be accompanied by a plan to correct the root cause of the problem, it accepted proposed actions by SWA that clearly did not demonstrate this capability.

Under the VDRP, a carrier—not individual employees—can self-disclose safety violations. When a carrier reports a violation, FAA addresses it with an administrative action, such as a Letter of Correction, instead of a civil penalty.

- For a violation to be accepted in the VDRP, it must not appear intentional or indicate a lack of air carrier qualifications.
- Further, upon finding the violation, the air carrier must immediately terminate the improper conduct and notify FAA—before FAA learns about it by other means. Specifically, air carrier representatives provide preliminary information on the

apparent violation and direct the report to the applicable FAA principal inspector (e.g., PMI) for review.

- Most importantly, the carrier must also develop a comprehensive solution to the problem, schedule of implementation, and a follow-up audit.
- The principal inspector can accept the report and close it without management approval.

We found several areas in which FAA did not adhere to these criteria:

- **FAA encouraged and formally accepted the March 19, 2007, self-disclosure, even though SWA did not immediately terminate the improper conduct.** While SWA indicated in the self-disclosure that it ceased the non-compliance (i.e., grounded the affected aircraft), it actually continued flying the affected aircraft as late as March 23, 2007, without the fuselage skin inspections.

In addition, FAA did not take steps to make sure SWA had completed all required inspections, even after it determined that SWA did not ground the aircraft. SWA operates 141 aircraft that would be impacted by this AD. Initially, SWA reported that 100 aircraft had overflowed the AD and then changed the number to 47⁵ aircraft when it submitted the formal voluntary disclosure. Despite this, FAA's Certificate Management Office did not obtain the tail numbers of the reported aircraft until November 2007—8 months after the self-disclosure.

Without the specific tail numbers, FAA had no way to determine if SWA had reported all affected aircraft and, ultimately, whether all aircraft were in compliance with the AD. Yet, the PMI accepted the report and closed it a few weeks later.

- **The PMI should have immediately grounded the aircraft and notified his management of the seriousness of the situation.** Even after the PMI knew that the carrier had not ceased the violating conduct, he did not take actions to ground the affected aircraft. The CMO manager was not aware of the significance of the violation because the program does not require management review of the report at any point in the process.

On March 22, 2007, while at Chicago-Midway Airport, one of the whistleblowers saw a mechanic repairing a crack on an aircraft that he believed had been reported in the disclosure. He went to the FAA inspector in charge of overseeing that particular fleet (Boeing 737-300). The inspector confirmed that the aircraft should have been grounded after SWA's self-disclosure but said that the PMI had given SWA permission to keep flying those aircraft.

⁵ SWA later determined that only 46 aircraft overflowed this AD.

In fact, the PMI subsequently confirmed that he knew that SWA's statements on the self-disclosure that the aircraft had been grounded were inaccurate, and yet he allowed SWA to continue flying the aircraft. Separate FAA inspector guidance⁶ regarding grounding an operator's aircraft states:

An inspector who becomes aware of an unsafe condition in an aircraft that is being operated or about to be operated and fails to act...is in dereliction of duty. This duty is placed specifically by Congress upon the inspector rather than on the Administrator. If the inspector, after due consideration, still has any doubts regarding whether or not to ground the aircraft, the grounding notice should be issued.

FAA needs to implement a process for secondary review of self-disclosures before they are accepted and closed—acceptance should not rest solely with one inspector.

- **FAA accepted SWA's proposed "comprehensive fix"; yet, this solution did not address the root cause of the problem.** In its disclosure, SWA stated its solution for the violation as follows: "all AD compliance personnel have been counseled on the importance of performing adequate reviews of AD documents." SWA also stated it planned to add another employee to the AD compliance group to ensure adequate reviews. The PMI accepted SWA's proposed solution but did not indicate that he had reviewed the solution before accepting it (April 2007).

FAA should have questioned how counseling personnel and adding one employee would mitigate system-wide problems.

- **FAA accepted assertions in SWA's follow-up audit that its comprehensive fix "had proven" to be effective in preventing recurrence; but more violations occurred.** In the audit, SWA cited "individual human error" as the reason for the missed fuselage inspections required by the AD. However, SWA's solution did not correct the problem, as SWA has reported AD violations five times since FAA accepted the proposed solution. The violations include missing the same inspections (overflying the same AD) on three more aircraft on February 22, 2008. Further, SWA missed inspections for a different but related AD on fuselage cracks on March 12, 2008. This time, 38 aircraft overflowed the directive.

On March 20, 2008, SWA determined that another aircraft had overflowed the same AD that it reported as overflowed in March 2007. SWA discovered this because we requested that it validate its previously provided information on the overflight. Had FAA attempted to validate the information provided by SWA, it would have identified this violation over a year ago.

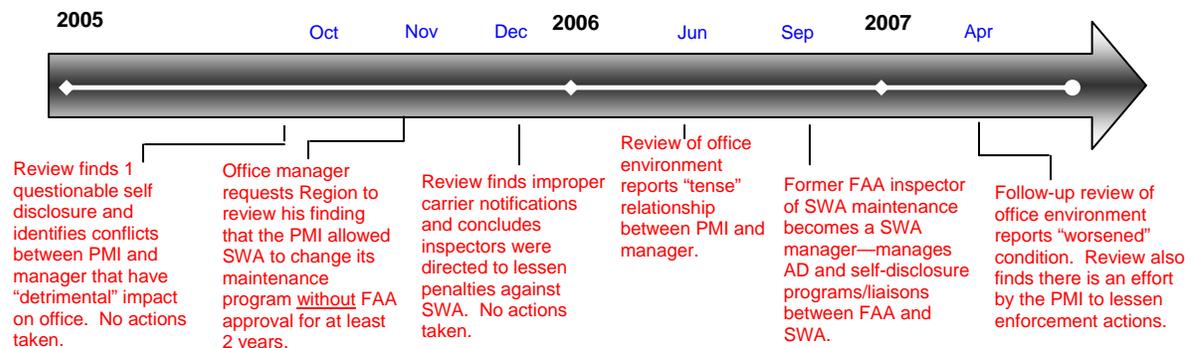
⁶ 8300.10 CHG 7, "Ground Operator Aircraft," July 17, 1992.

FAA’s guidance for self-disclosure programs should require its inspectors to fully review the carrier’s proposed solution for the reported problem and document that review. FAA should also require that the official who approves and closes the VDRP is not the same official that accepted it from the air carrier. This would help to ensure that the relationship between the carrier and the inspection office does not hamper safety oversight, as happened in this case.

Breakdowns in FAA’s Oversight of Its Self-Disclosure Program Point to an Overly Collaborative Relationship With SWA

Partnership programs, when properly implemented, can be a valuable safety tool. However, the success of these programs depends on the integrity of the people using them. In the SWA case, the actions of the CMO tipped heavily in favor of collaboration and partnership rather than oversight and enforcement. Figure 3 shows a timeline of key events that illustrate concerns about FAA’s relationship with the air carrier. According to the whistleblowers, the favoritism that this inspection office tended to show toward SWA ultimately divided the entire office into two camps. The division in the office became so bad it affected inspectors’ abilities to perform their jobs.

Figure 3. Key Reviews and Events at CMO for SWA Showing Overly Collaborative Relationship



Concerns that the PMI was too close to the air carrier surfaced as early as 2005.

- In September 2005, FAA’s Southwest Regional Manager requested an internal review into allegations that the PMI was inappropriately accepting self-disclosures from the carrier. The investigation was prompted by the CMO manager’s concerns that an FAA inspector found a violation and that the PMI still allowed the carrier to submit it as a self-disclosure—a clear violation of FAA’s criteria for self-disclosures, which require that FAA have no prior knowledge of the violation.

The report for this review, issued in October 2005, concluded that, while there was one questionable self-disclosure, there was no systemic problem with self-

disclosures at this office. This review also noted several issues between the PMI and office manager that had a “detrimental” impact on the inspection office.

- In November 2005, the CMO manager requested assistance from FAA’s Southwest Regional Manager to conduct an independent, in-depth review of the PMI’s handling of SWA manual approvals. Specifically, the CMO manager determined that the PMI had permitted SWA to make changes to its maintenance program without FAA approval for at least 2 years. The manager expressed concerns that a possible safety risk existed. There is no evidence that the Region assisted the CMO manager in this effort.
- In December 2005, the CMO manager requested a second independent review of air carrier notifications issued by his office (this review was conducted by an FAA inspector from another inspection office within the FAA Southwest Region). This review found that the PMI at the SWA office had issued five carrier notifications that should have been issued as enforcement actions. A carrier notification, or Letter of Concern, merely notes or documents a non-regulatory finding to a carrier—it does not require corrective action and is not tracked to ensure the problem was resolved. We found no evidence that FAA took any action to address these findings.
- In June 2006, FAA’s Southwest Regional Office requested that the Work Environment Advisory Team review reasons for ongoing personality conflicts that appeared to be adversely affecting the effectiveness of the office. The review team found that there was a tense relationship between the CMO manager and the PMI. One employee indicated that “SWA was using these relationship tensions to its advantage.” The team recommended that the CMO manager develop an action plan to correct these problems and that the managers participate in team building exercises. The CMO manager subsequently developed an action plan, but since the problems within the office continued, the action plan was ineffective.
- In September 2006, the appearance of impropriety between the air carrier and FAA resurfaced when a former FAA inspector—who was responsible for overseeing SWA maintenance operations—went to work for SWA as its Regulatory Compliance Manager. When this employee worked for FAA, he reported directly to the PMI.

The employee was able to transition from being an FAA inspector to a SWA manager in just 2 weeks. In his new job, he serves as the liaison between the carrier and FAA and manages Southwest’s AD Compliance Program and its Voluntary Disclosure Reporting Program. FAA should revise its post-employment guidance to require a “cooling off” period when an FAA inspector is hired at an air carrier that he or she previously inspected.

- In April 2007, FAA’s Southwest Regional Office requested that the Work Environment Advisory Team conduct a follow-up review to determine if the office environment had improved. The team determined that the environment had actually worsened, in part, because of concerns related to the PMI’s handling of a self-disclosure. Specifically, the report stated “there was an effort by the PMI to minimize enforcement initiatives” in favor of pursuing collaborative solutions with the air carrier.

Had FAA taken timely action to address the results of these reviews, it may have realized that the relationship between its inspection office and SWA was adversely affecting safety oversight—long before the AD overflight occurred. We have seen problems with FAA’s implementation of other partnership programs, which if not corrected, could put the benefits of such programs in jeopardy.

Problems With Other FAA Partnership Programs

As part of an ongoing review of a hotline complaint from an FAA inspector for Continental Airlines, we identified problems with FAA’s implementation of the Aviation Safety Action Program. ASAP is a joint FAA and industry program intended to generate safety information through voluntary disclosure that may not be otherwise obtainable. The program allows individual aviation employees—not the air carrier—to disclose possible safety violations to air carriers and FAA, without fear that the information will be used to take enforcement or disciplinary action against them.

The FAA inspector who submitted the complaint was concerned because a fatal accident was accepted into an ASAP program. In this incident, a mechanic was ingested into an engine as pilots performed an engine maintenance procedure. The pilots then self-disclosed the accident through ASAP.

The complainant believed that the pilots acted carelessly and questioned whether a fatal accident should be included in ASAP. A fatal accident is investigated by the National Transportation Safety Board, and the results of that investigation would be available to FAA. The complainant asserted that this should render the incident ineligible for ASAP, since its acceptance would contradict the program’s intent—obtaining voluntarily reported safety information that would not be otherwise obtainable. We agree but found that FAA’s current guidance on ASAP does not specifically prohibit fatal accidents from being accepted into the program. We will report the results of our review later this year.

We are not advocating a return to past practices where FAA relied primarily on penalties and fines when airlines or aviation employees commit safety violations. FAA believes these programs are important in forming valuable collaborative relationships with air carriers. Used properly, these programs can indeed be important tools for FAA and the aviation industry. However, safety partnership programs must

be balanced with a strong commitment to oversight. FAA must ensure these programs do not lapse into automatic amnesty for violators or become influenced by improper relationships that may exist between an FAA inspection office and an air carrier.

Multiple Missed ATOS Inspections at SWA Point to Longstanding Weaknesses in FAA’s National Oversight

FAA oversight lapses at the local and national level allowed weaknesses in SWA’s maintenance program to go undetected for years. Specifically, FAA did not ensure that its inspectors carried out critical safety inspections required by FAA’s risk-based oversight system, ATOS. ATOS inspectors should examine airlines’ systems for ensuring compliance with ADs every 5 years; yet we found that FAA inspectors had not examined SWA’s system since 1999. We have always supported the concept of risk-based oversight as the only way FAA will be able to effectively oversee a large and rapidly changing aviation industry. However, this case and our work at other carriers show that FAA still needs to improve its management of ATOS—which we called for in 2002 and again in 2005.

A pattern of events dating back to 2003 should have raised concerns at the CMO with FAA’s oversight approach, particularly with respect to AD compliance. For example, in 2003, one of the whistleblowers in the SWA case identified problems with how SWA handled compliance with safety directives for aircraft engines. However, his efforts to undertake a systematic, fleet-wide review of how the airline managed compliance with safety directives were blocked by his supervisor, the PMI.

At the time of the SWA disclosure, the CMO responsible for overseeing SWA had 21 key maintenance-related ATOS inspections overdue for at least 5 years (see table 1).

Table 1. Safety Inspection Activity - October 1, 2000 to March 15, 2007

(Note: 21 inspections not completed as of March 15, 2007—the date that SWA verbally notified FAA of potential AD overflight.

| No. | Element | Date of Last Inspection* | Date Inspection Was Due | No. of Months Past Due as of March 15, 2007 |
|-----|---|--------------------------|-------------------------|---|
| 1 | AD Management | 10/1/1999** | 9/30/2004 | 90 |
| 2 | General Maintenance Manual/Equivalent | 6/4/01 | 6/3/06 | 69 |
| 3 | Continuous Analysis and Surveillance (CAS) | 11/23/01 | 11/22/06 | 64 |
| 4 | Engineering/Major Repairs and Alterations | 1/18/02 | 1/17/07 | 62 |
| 5 | Maintenance Log/Recording Requirements | 1/25/02 | 1/24/07 | 62 |
| 6 | Reliability Program | 2/1/02 | 1/31/07 | 61 |
| 7 | Airworthiness Release/Logbook Entry | 3/4/02 | 3/3/07 | 60 |
| 8 | RII Training Requirements | none | 9/30/05 | 80 |
| 9 | Appropriate Operational Equipment | none | 9/30/05 | 80 |
| 10 | Major Repairs and Alterations Records | none | 9/30/05 | 80 |
| 11 | Maintenance Facility/Main Base | none | 9/30/05 | 80 |
| 12 | Weight and Balance | none | 9/30/05 | 80 |
| 13 | Manual Currency | none | 9/30/05 | 80 |
| 14 | Distribution (Manuals) | none | 9/30/05 | 80 |
| 15 | Availability (Manuals) | none | 9/30/05 | 80 |
| 16 | Supplemental Operations Manual Requirements | none | 9/30/05 | 80 |
| 17 | Content Consistency Across Manual | none | 9/30/05 | 80 |
| 18 | Maintenance Certificate Requirements | none | 9/30/05 | 80 |
| 19 | Privileges Airframe and Powerplant | none | 9/30/05 | 80 |
| 20 | RVSM Authorization | none | 9/30/05 | 80 |
| 21 | Director of Safety | none | 9/30/05 | 80 |

Source: FAA's database for ATOS
 Inspection is considered overdue if not completed within 5 years from last inspection date.
 *If no date was available, then October 1, 2000, was used to determine inspection status.
 **Actual month/day unknown

While FAA has subsequently completed some of these inspections, as of March 25, 2008, 5 of these 21 inspections were still incomplete and overdue for nearly 8 years.

ATOS is designed to focus inspection activities on high-risk areas. We found that inspectors were performing inspections on areas with little or no risk, such as the carrier's system for distributing inspection manuals. Inspections should prioritize high-risk areas, such as the systems SWA uses to ensure it complies with ADs or to monitor the effectiveness of its maintenance programs.

The fact that FAA Headquarters did not know that its inspection office for SWA had not completed required ATOS inspections underscores weaknesses we previously reported about ATOS. Since introducing the system nearly 10 years ago, FAA has made significant strides in its implementation; however, our work has shown that a

range of actions is still needed to improve ATOS, particularly in terms of national oversight of the program.

In April 2002, we reviewed nine air carriers and reported that FAA needed to improve how it holds field managers accountable for consistently implementing ATOS. Although FAA had an ATOS program office, the office merely provided administrative support and general guidance for field offices. Consequently, field offices were left on their own to implement ATOS, and this led to inconsistent ATOS inspection methods across FAA field offices.

We found FAA inspectors were confused over how to conduct ATOS inspections, unclear on the concepts of system safety and risk analysis, frustrated by a perceived lack of management direction and support, and concerned that ATOS did not give sufficient inspection coverage of air carrier operations. For example:

- Seventy-one percent of the inspectors we interviewed considered ATOS training to be inadequate. This lack of training for the inspector workforce had adversely affected the quality of important data collected from ATOS inspections.
- Eighty-three percent of the principal inspectors we interviewed considered ATOS data inadequate for shifting inspector resources to highest risk areas, a key goal of risk-based oversight.
- Over 50 percent of the inspectors stated they did not understand ATOS inspection checklist questions.

We recommended that FAA strengthen national oversight and accountability to ensure consistent field implementation of ATOS. FAA responded that it did not need a separate national oversight function, because the newly appointed director of Flight Standards (at Headquarters) would serve in that role and hold field offices accountable for implementing ATOS effectively. However, this action still did not improve consistency with ATOS inspections at field offices.

In June 2005, we again recommended that FAA strengthen its national oversight and monitoring of ATOS—this time, through a data-centered approach. In this review, we identified problems with the Agency’s ability to use the system to monitor the changing aviation industry.

For example, FAA inspectors did not complete 26 percent of their planned inspections. Over 50 percent of these were in areas where inspectors had identified risks, as shown in table 2.

Table 2. Inspectors Did Not Complete All Planned Inspections of Identified Risk Areas

| FAA Office | Inspections | | |
|--------------|----------------|--------------------------------|---|
| | Number Planned | Total Number (%) Not Completed | Number (%) Not Completed That Were in Identified Risk Areas |
| United | 617 | 259 (42%) | 151 (58%) |
| Delta | 582 | 234 (40%) | 49 (21%) |
| American | 614 | 168 (27%) | 78 (46%) |
| Northwest | 834 | 147 (18%) | 108 (74%) |
| US Airways | 894 | 130 (15%) | 130 (100%) |
| Total | 3,541 | 938 (26%) | 516 (55%) |

Our recommendations to FAA included establishing policies and procedures to ensure that national analyses and support groups provide stronger assistance to field offices. This will help FAA to ensure that inspectors consistently assess risks and conduct inspections at air carriers in a timely manner. However, FAA has not fully addressed this recommendation.

Had FAA implemented our recommendations, it may have identified overdue inspections at carriers, such as SWA, before serious safety problems developed. We continue to believe that FAA should significantly strengthen its national ATOS oversight, including a process to track field office inspections to ensure they are conducted in a timely manner. By periodically checking ATOS data at each field office, this process would serve as a “trigger” system to alert inspectors of overdue inspections.

FAA Has Recently Begun a Review at SWA for AD Compliance

The events surrounding SWA underscore the need for FAA to make immediate and comprehensive changes to its oversight of air carriers. On March 12, 2008, FAA began an Air Carrier Evaluation Program (ACEP) review at SWA. ACEP is a team review process for air carriers at the national, regional, and district office levels. This is the first time FAA has used this evaluation process. This review uses the same ATOS checklists that inspectors should have used to perform surveillance at SWA. FAA has assigned 12 team members, independent of the CMO, to conduct the review at SWA.

The objective of this evaluation is to:

- Determine how SWA documents and tracks AD and maintenance inspections.
- Evaluate SWA's Continuous Analysis and Surveillance System (CASS) to determine if there are proper controls on all processes (CASS is the system air carriers use to monitor the effectiveness of their aircraft maintenance and inspection programs).
- Verify that the air carrier complies with applicable regulations.

The ACEP team members were tasked with reviewing three key maintenance programs at SWA: AD management, the Continuous Analysis and Surveillance System, and the Maintenance Inspection Program. FAA selected these three programs due to their interdependence in forming an effective maintenance program.

Early indications are that the local FAA office will have to work closely with the air carrier to revamp its procedures in the areas being audited, as proper maintenance procedures have never been documented in its manual system. The ACEP team was tasked with completing this review by March 28, 2008.

After the SWA Events, FAA Initiated AD Reviews at Other Carriers

Because of SWA's highly publicized AD non-compliances, FAA issued a notice on March 13, 2008, requiring FAA inspectors to conduct a detailed review of AD compliance at their respective air carriers. This review is scheduled to be completed in two phases. During the first phase, FAA inspectors must review a sample of 10 ADs applicable to their air carriers' fleets—this sample must include the AD that SWA overflew, if appropriate. This phase was scheduled for completion on March 28, 2008.

During the second phase, FAA inspectors must sample additional ADs in order to review a total of 10 percent of all ADs applicable to the air carriers' fleets. For example, if an air carrier has 200 ADs applicable to its fleet, inspectors must determine compliance with 20 ADs. The second phase of the review must be completed by June 30, 2008.

FAA's Internal Reviews Identified Problems, but FAA Did Not Take Timely Corrective Actions

Our ongoing work at SWA and previous audit work at Northwest Airlines has identified weaknesses in FAA's processes for conducting internal reviews of safety issues and ensuring appropriate corrective actions.

Although repeated reviews and investigations by other FAA offices identified questionable practices by the PMI, they focused on the relationship between the PMI and his manager rather than corrective actions.

- On April 16, 2007, FAA's Southwest Regional Office sent an independent review team (comprised of inspectors assigned to another carrier, but still within the FAA Southwest Region) to investigate the AD overflight. The team reported that SWA had operated the 47 planes in a known unairworthy condition and that the PMI condoned this operation. However, after this review, the Region did not take disciplinary action against the PMI; he was merely reassigned to another office.
- On May 1, 2007, FAA's Southwest Regional Office requested another review of the disclosure—this time by FAA's Security and Hazardous Materials Division (SHMD). On July 12, 2007, the SHMD reported that SWA never ordered the planes grounded and that the PMI admitted he should not have encouraged the self-disclosure. FAA still did not use these results as basis for action against the PMI or to take action to review SWA's self-disclosure to determine whether it was valid or if enforcement actions should be initiated.
- On September 18, 2007, FAA's Southwest Regional Office requested another review to supplement SHMD's original review. FAA believed the first review did not provide enough information. The supplemental review provided a confession from the PMI that he did in fact knowingly permit SWA to continue flying the 47 aircraft, which should have been grounded due to their non-compliance with the AD. The PMI stated to the review team,

I should have grounded the affected aircraft and informed [regional management] for further guidance. I permitted unairworthy SWA aircraft to operate in revenue service, and I was wrong to do so. However, politically, I felt that grounding the SWA aircraft would have negative consequences for the FAA.

- On October 10, 2007, FAA's Southwest Regional Office examined the CMO's record to determine if it had performed a follow up inspection of SWA's self-disclosure and AD management. The review determined that the CMO had not performed inspections to ensure AD compliance or to ensure that the carrier was following its own AD compliance procedures.

- On October 31, 2007, an inspector from another FAA office within the Southwest Region did a records review and determined that SWA had completed the required inspections for all affected aircraft. However, his review only examined documents provided by SWA. According to documents we reviewed, he did not examine the maintenance records to verify that these inspections were actually completed. We question why this review was not more thorough and why none of the previous FAA reviews attempted to verify the inspections, since SWA had reported the violation 7 months earlier.

FAA's series of internal reviews found, as early as April 2007, that the PMI was complicit in allowing SWA to continue flying aircraft in violation of the AD. Yet, FAA did not attempt to determine the root cause of the safety issue, take action against the PMI, nor take enforcement against the carrier until November 2007. This is in stark contrast to the treatment of one of the whistleblowers and the CMO manager who attempted to report the issues with the PMI's overly collaborative relationship with the air carrier.

The whistleblower was subjected to an FAA investigation based on a vague hotline complaint shortly after he began reporting his concerns to management. According to the CMO manager, he received the complaint from the PMI, who stated that a SWA representative had submitted the complaint. The inspector was removed from his oversight duties for 5 months while he was being investigated.

According to FAA officials, it is customary to remove an inspector from oversight activities during an investigation. However, we noted that the PMI that had knowingly permitted the overflight was never completely relieved of his duties. He was merely transferred to another FAA office. The CMO manager was also transferred to another FAA office, which was effectively a downgrade, and given minimal responsibility because, according to FAA, he was not successfully dealing with the issues occurring in the office.

While the whistleblowers in the SWA case are principally responsible for bringing the egregious activities at the CMO to light, FAA failed to protect them from retaliation by other FAA employees. For example, we found that one of the whistleblowers was subjected to several instances of harassment, beginning in June 2007, in which his papers and personal belongings were strewn about his desk and onto the floor, insulting signs posted near or on his work space, and items on his desk and in his cube were moved or rearranged. In February 2008, an implied death threat was delivered to his home.

We have previously reported on incidents at another carrier where FAA focused on discounting the validity of an inspector's concerns rather than determining whether there were safety issues that needed correction. In this case, the safety concerns were valid, and FAA should have immediately acted to correct the problems.

Problems With FAA's Internal Safety Reviews at Another Carrier

Our 2005 audit at Northwest Airlines identified weaknesses in FAA's processes for conducting internal reviews, ensuring appropriate corrective actions, and handling employees who report safety concerns. At the request of former Senator Mark Dayton, we conducted a review in 2005 of FAA's handling of safety concerns at Northwest Airlines. An FAA inspector for the carrier raised these concerns at the start of a mechanics strike. Specifically, Northwest replaced approximately 4,400 mechanics on strike with 1,400 temporary mechanics and increased the use of contract mechanics. The inspector was concerned that Northwest had not adequately trained its replacement mechanics for their new responsibilities.

The inspector submitted his concerns to FAA in the form of a safety recommendation. Northwest officials then complained to FAA that the complainant's conduct was interfering with Northwest operations. As with the whistleblower in the SWA case, FAA managers reassigned the complainant to office duties and restricted him from performing oversight on Northwest's premises.

In response to the inspector's concerns, FAA initiated an internal review to assess the complainant's allegations. However, the review team was not independent and did not thoroughly investigate the complaints or ensure that the problems they identified within FAA and at Northwest were corrected. Despite concerns expressed by the complainant and our office, FAA's review team included two representatives from the regional office where the complainant was based, thus giving the appearance of bias.

Once on site, the team performed a very limited review. For example, in the first 2 months of the strike, FAA inspectors had identified 121 findings related to replacement mechanics' lack of knowledge or ability to properly complete maintenance tasks and maintenance documentation. Even though the review team was aware of these findings, they only reviewed mechanics' training files. The team did not observe replacement mechanics performing maintenance or examine the 121 findings.

FAA agreed to initiate a second review in response to our concerns about its first review. This review was performed by a more independent team and validated some of the complainant's concerns regarding replacement mechanic training. Yet, FAA did not use the results to ensure that the CMO for Northwest took action to resolve identified problems. FAA instead informed the complainant that his concerns lacked merit.

Even after FAA finalized its second report, we found no evidence that the report was issued to the CMO or that FAA's Office of Flight Standards Service planned to verify that the findings and other inspector concerns would be addressed. In fact, even though one of the findings in the second team's report was that the CMO had not

acted on issues identified early in the strike, the team left it to the CMO to further investigate and resolve these issues.

We recommended that FAA establish better internal review procedures to ensure comprehensive, independent investigations of safety allegations and recommendations. FAA agreed to establish a new internal review capability that would allow it to perform independent assessments of safety allegations. FAA plans to implement this capability by September 30, 2008. As currently proposed by FAA, the reviews would be under the direction of FAA's Flight Standards organization. However, in light of the recent events at SWA—where, again, we have seen evidence of poor FAA reviews of inspectors' safety concerns—FAA should develop an independent body outside of the FAA Aviation Safety organization to conduct these reviews.

FAA Needs To Make Immediate and Comprehensive Changes to Its Air Carrier Oversight Programs

The events surrounding SWA underscore the need for FAA to make immediate and comprehensive changes to its oversight of air carriers. After the SWA events became public last month, FAA proposed to fine SWA over \$10 million. FAA has also initiated reviews for AD compliance at SWA and other carriers. Our ongoing work will examine the effectiveness of these reviews. Given the magnitude of problems identified, FAA needs to take several critical actions to improve its oversight of all air carriers and its use of regulatory partnership programs. We are recommending that FAA:

- establish an independent organization that can conduct thorough and timely investigations of safety issues identified by its inspector workforce.
- periodically rotate its supervisory inspectors, such as the Principal Maintenance Inspector, to ensure reliable and objective oversight of air carriers.
- revise current VDRP guidance to require FAA inspectors to (a) verify that air carriers take comprehensive actions to correct the underlying causes of violations identified through self-disclosure programs and (b) evaluate, before accepting a new report of a previously disclosed violation, whether the carrier developed and implemented a comprehensive solution.
- implement a process for secondary review of airline self-disclosures before they are accepted and closed—these steps should not rest solely with one inspector.

- revise its post-employment guidance to require a “cooling-off” period when an FAA inspector is hired at an air carrier he or she previously inspected.
- implement a process to track field office inspections and alert the local, regional and Headquarters offices to overdue ATOS inspections.
- develop a national review team that conducts periodic reviews of FAA’s oversight of air carriers.

We will continue to examine FAA’s oversight approach from a national perspective, as requested by this Committee. We must ensure that these problems are not repeated and that corrective actions are properly implemented. We will keep the Committee apprised of our progress with this review, as well as other actions FAA can take to enhance safety.

That concludes my statement, Mr. Chairman. I would be happy to address any questions you or other Members of the Committee may have.

EXHIBIT A. AIRCRAFT THAT OVERFLEW AD-2004-18-06

| Aircraft | No. of Cycles Past Due | Inspection Due | Inspection Completed | No. of Months Overdue | Crack Found | |
|----------|------------------------|----------------|----------------------|-----------------------|----------------------|--|
| 1 | 1,821 | 12-Jul-06 | 18-Mar-07 | 9 | 1" left, 1/4 " right | |
| 2 | 1,623 | 5-Jul-06 | 19-Mar-07 | 9 | | |
| 3 | 1,658 | 24-Jul-06 | 19-Mar-07 | 8 | | |
| 4 | 1,561 | 14-Jul-06 | 17-Mar-07 | 9 | | |
| 5 | 1,379 | 13-Jul-06 | 16-Mar-07 | 9 | | |
| 6 | 1,765 | 21-Jun-06 | 19-Mar-07 | 9 | Length not recorded | |
| 7 | 1,878 | 18-Jun-06 | 19-Mar-07 | 9 | | |
| 8 | 1,453 | 30-Jun-06 | 16-Mar-07 | 9 | | |
| 9 | 1,187 | 26-Jun-06 | 18-Mar-07 | 9 | | |
| 10 | 1,347 | 8-Sep-06 | 19-Mar-07 | 7 | | |
| 11 | 1,494 | 16-Aug-06 | 23-Mar-07 | 8 | | |
| 12 | 1,248 | 31-Aug-06 | 19-Mar-07 | 7 | | |
| 13 | 120 | 28-Feb-07 | 17-Mar-07 | 1 | | |
| 14 | 1,435 | 29-Aug-06 | 20-Mar-07 | 7 | | |
| 15 | 1,520 | 20-Aug-06 | 19-Mar-07 | 7 | | |
| 16 | 1,517 | 13-Aug-06 | 16-Mar-07 | 8 | 4", 1" and 2" | |
| 17 | 1,444 | 26-Aug-06 | 18-Mar-07 | 7 | | |
| 18 | 1,601 | 27-Jun-06 | 15-Mar-07 | 9 | | |
| 19 | 1,315 | 18-Jun-06 | 17-Mar-07 | 9 | | |
| 20 | 1,585 | 25-Jun-06 | 16-Mar-07 | 9 | | |
| 21 | 720 | 11-Dec-06 | 18-Mar-07 | 4 | | |
| 22 | 1,081 | 27-Oct-06 | 20-Mar-07 | 5 | | |
| 23 | 1,753 | 2-Jul-06 | 19-Mar-07 | 9 | | 2" right, 1" left Length not recorded |
| 24 | 1,682 | 1-Dec-06 | 27-Apr-07 | 5 | | |
| 25 | 1,501 | 9-Nov-06 | 16-Mar-07 | 5 | | |
| 26 | 289 | 21-Jan-07 | 18-Mar-07 | 2 | | |
| 27 | 131 | 8-Feb-07 | 15-Mar-07 | 2 | | |
| 28 | 229 | 21-Feb-07 | 23-Mar-07 | 1 | | |
| 29 | 945 | 6-Nov-06 | 20-Mar-07 | 5 | | |
| 30 | 726 | 7-Dec-06 | 16-Mar-07 | 4 | | |
| 31 | 1,532 | 6-Jul-06 | 16-Mar-07 | 9 | | |
| 32 | 1,765 | 27-Jun-06 | 23-Mar-07 | 9 | | |
| 33 | 1,768 | 17-Jun-06 | 18-Mar-07 | 9 | | |
| 34 | 1,796 | 7-Jul-06 | 16-Mar-07 | 9 | | |
| 35 | 1,688 | 2-Jul-06 | 18-Mar-07 | 9 | | |
| 36 | 45 | 12-Mar-07 | 21-Mar-07 | 1 | | |
| 37 | 1,844 | 10-Jul-06 | 18-Mar-07 | 9 | | |
| 38 | 1,831 | 12-Jul-06 | 21-Mar-07 | 9 | | |

| | | | | | |
|---------------|---------------|-----------|-----------------|----------|--|
| 39 | 1,742 | 25-Jul-06 | 20-Mar-07 | 8 | |
| 40 | 1,434 | 3-Sep-06 | 21-Mar-07 | 7 | |
| 41 | 718 | 11-Oct-06 | 18-Mar-07 | 6 | |
| 42 | 1,455 | 7-Sep-06 | 19-Mar-07 | 7 | |
| 43 | 1,666 | 2-Aug-06 | 19-Mar-07 | 8 | |
| 44 | 1,552 | 1-Aug-06 | 17-Mar-07 | 8 | |
| 45 | 634 | 17-Dec-06 | 20-Mar-07 | 4 | |
| 46 | 1,746 | 19-Jun-06 | 17-Mar-07 | 9 | |
| Total: | 61,224 | | Average: | 7 | |

EXHIBIT B. MULTIPLE AD VIOLATIONS AT SWA

Southwest Airlines has been in non-compliance with **four** different Airworthiness Directives **eight** times since December 2006. Each of the ADs apply to Boeing 737 aircraft. The ADs also specify that if any cracking is found during inspection of the aircraft, repairs must be made prior to returning the aircraft to service. (All ADs were self-disclosed by Southwest).

- **December 7, 2006**—AD 2005-07-19: SWA failed to complete an inspection on the cargo doorway frame as required by an AD. This AD non-compliance affected one aircraft. The aircraft flew 30 flights while in non-compliance with the AD.
- **January 29, 2007**—AD 2002-07-08: During a maintenance check, SWA maintenance personnel discovered six fuselage skin cracks on an aircraft. The aircraft was sent to a repair station for repair. Repair station personnel identified additional skin cracks and ultimately determined that the repetitive inspections on window frames and upper fuselage as required by the AD were not accomplished in October 2004, when they should have been. This AD non-compliance went undetected for 27 months.
- **March 14, 2007**—AD 2004-18-06: SWA failed to complete repetitive inspections on upper and lower fuselage panels as required by AD. The carrier operated 46 aircraft in non-compliance with the AD for up to 9 months. SWA operated these aircraft for 61,224 flights in noncompliance with the AD.
- **February 21, 2008**—AD 2005-07-19: SWA failed to complete inspections on cargo doorway frames as required by the AD. The carrier operated 27 aircraft in non-compliance with the AD. The investigation is ongoing on these aircraft, so SWA has not yet determined how many flights were operated.
- **February 22, 2008**—AD 90-25-01: SWA failed to accomplish required inspections for corrosion prevention covering the entire aircraft. The carrier operated one aircraft in non-compliance with the AD on 1,378 flights.
- **February 22, 2008**—AD 2004-18-06: SWA failed to accomplish repetitive inspections on the upper and lower fuselage skin for three aircraft as required by the AD. These three aircraft flew 3,922 flights while in non-compliance with the AD. *This self disclosure was rejected by FAA.*

- **March 12, 2008**—AD 2002-07-08: SWA failed to accomplish repetitive inspections on the window frames and upper fuselage for 38 aircraft as required by the AD. Six of these aircraft flew seven flights while in non-compliance with this AD. *This self disclosure was rejected by FAA.*
- **March 20, 2008**—AD-2004-18-06: SWA discovered it failed to accomplish the required inspections for one aircraft. This aircraft flew in violation of the directive for 889 flights.

Details of Multiple ADs Overflown—Southwest Airlines

SWA overflaw the following Airworthiness Directives.

AD 2002-07-08 Lap Joints of the Fuselage

The AD specifies inspection and repair procedures for aircraft where cracking of certain fuselage lap joints were found, which could cause sudden decompression of the airplane.

Requires repetitive inspections at prescribed cycle intervals depending on the aircraft's line number:

- Low-frequency eddy current inspections of the fuselage crown area
- High-frequency eddy current inspections of the aircraft window corners

AD 2004-18-06 Upper and Lower Skin Panels of the Fuselage

The AD specifies inspection and repair procedures for aircraft where cracking of certain upper and lower skin panels of the fuselage, which could result in sudden fracture and failure of the skin panels and consequent rapid decompression of the airplane.

Requires repetitive inspections at prescribed cycle intervals depending on the aircraft's line number:

- External detailed visual inspections and eddy current inspections of the aircraft crown area and lower lobe areas as well as other known areas of fuselage skin cracking

AD 2005-07-19 Cracks in the Fuselage Skin, Doubler, Bearstrap, and Frames

The AD was prompted by reports of multiple fatigue cracks in the fuselage skin and bonded skin doubler, bearstrap, and doorway frames surrounding the forward and aft cargo doors.

Requires repetitive inspections at prescribed cycle intervals on certain series of Boeing 737 aircraft:

- Detailed and general visual inspections
- Low, mid, and high-frequency eddy current inspections for cracks in the fuselage skin, bonded skin doubler, bearstrap, and doorway frames

Potential safety factors

- Loss of structural integrity of the frames is likely if left unrepaired
- Possible loss of cargo doors and consequent rapid decompression of the fuselage

AD 90-25-01 Corrosion Control

The AD requires inspection of B-737 aircraft in support of Aging Aircraft Corrosion Prevention and Control Program

The following pages contain textual versions of the graphs and charts found in this document. These pages were not in the original document but have been added here to accommodate assistive technology.

Actions Needed To Strengthen FAA's Safety Oversight and Use of Partnership Programs

Section 508 Compliant Presentation

Figure 1. Timeline of the Southwest Airlines Disclosure and FAA Actions

- March 14, 2007: Southwest Airlines discovers it overflew
- March 15, 2007: Southwest Airlines representative notifies Principal Maintenance Inspector that 100 planes may have overflowed.
- March 19, 2007: Southwest Airlines self-discloses that 47 planes overflew Airworthiness Directive (Southwest Airlines later determined only 46 planes had violated the Airworthiness Directive).
- March 22, 2007: During routine inspection at Chicago, whistleblower sees cracks on 1 of the reported planes—it had flown the day before.
- March 23, 2007: Southwest Airlines states it has completed inspections for affected planes—five had cracks. (Note: Affected planes continue operating on 1,451 flights from March 14, 2007, to March 23, 2007.)
- April 16, 2007: Independent review (by inspectors for another office within the Federal Aviation Administration's Southwest Region) concludes that Southwest Airlines operated 47 planes in known unairworthy condition and that the Principal Maintenance Inspector condoned this. No action taken against the Principal Maintenance Inspector.
- May 1, 2007: The Federal Aviation Administration's Southwest Region requests the Federal Aviation Administration's Security and Hazardous Materials Division to review the Southwest Airlines disclosure.
- July 12, 2007: Security and Hazardous Materials Division reports that Southwest Airlines stated that the Principal Maintenance Inspector never ordered the planes grounded and that the Principal Maintenance Inspector admitted he shouldn't have encouraged the self-disclosure.
- September 18, 2007: The Federal Aviation Administration's Southwest Region requests a second review from the Security and Hazardous Materials Division.
- October 2, 2007: Security and Hazardous Materials Division second review reports that the Principal Maintenance Inspector admitted he should have

grounded planes but chose to avoid negative affect on FAA (results of this review spark February 2008 Committee request to the Office of Inspector General).

- November 16, 2007: The Federal Aviation Administration initiates enforcement action.

Figure 2. Eight Southwest Airlines Aging Aircraft Airworthiness Directive Violations

- December 7, 2006: AD-2005-07-19: Cargo door. One plane in violation on 30 flights.
- January 29, 2007: AD-2002-07-08: Windows and upper fuselage. One plane flew in violation for 27 months.
- March 19, 2007: AD-2004-18-06: Upper and lower fuselage panels. Forty-six planes in violation on 61,224 flights for 9 months.
- February 21, 2008: AD-2005-07-19: Cargo door. Twenty-seven planes in violation.
- February 22, 2008: AD-2004-18-06: Upper and lower fuselage panels. Three planes in violation on 3,922 flights.
- February 22, 2008: AD-90-25-01: Corrosion prevention; inspections to cover entire plane. One plane in violation on 1,378 flights.
- March 12, 2008: AD-2002-07-08: Windows and upper fuselage. Thirty-eight planes in violation.
- March 20, 2008: AD-2004-18-06: Upper and lower fuselage panels. One plane in violation on 889 flights.

Figure 3. Key Reviews and Events at the Certificate Management Office for Southwest Airlines Showing Overly Collaborative Relationship

- October 2005: Review finds 1 questionable self disclosure and identifies conflicts between Principal Maintenance Inspector and manager that have “detrimental” impact on office. No actions taken.
- November 2005: Office manager requests Region to review his finding that the Principal Maintenance Inspector allowed Southwest Airlines to change its maintenance program without Federal Aviation Administration approval for at least 2 years.

- December 2005: Review finds improper carrier notifications and concludes inspectors were directed to lessen penalties against Southwest Airlines. No actions taken.
- June 2006: Review of office environment reports “tense” relationship between Principal Maintenance Inspector and manager.
- September 2006: Former Federal Aviation Administration inspector of Southwest Airlines maintenance becomes a Southwest Airlines manager—manages Airworthiness Directive and self-disclosure programs/liaisons between Federal Aviation Administration and Southwest Airlines.
- April 2007: Follow-up review of office environment reports “worsened” condition. Review also finds there is an effort by the Principal Maintenance Inspector to lessen enforcement actions.

Table 1. Safety Inspection Activity - October 1, 2000 to March 15, 2007

(Note: 21 inspections not completed as of March 15, 2007—the date that SWA verbally notified FAA of potential AD overflight.

| Number | Element | Date of Last Inspection* | Date Inspection Was Due | No. of Months Past Due as of March 15, 2007 |
|--------|--|---------------------------------------|------------------------------------|---|
| 1 | AD Management | Date of Last Inspection : 10/1/1999** | Date Inspection was due: 9/30/2004 | Number. of Months Past Due as of March 15, 2007: 90 |
| 2 | General Maintenance Manual/Equivalent | Date of Last Inspection : 6/4/01 | Date Inspection was due: 6/3/06 | Number. of Months Past Due as of March 15, 2007: 69 |
| 3 | Continuous Analysis and Surveillance (CAS) | Date of Last Inspection : 11/23/01 | Date Inspection was due: 11/22/06 | Number. of Months Past Due as of March 15, 2007: 64 |
| 4 | Engineering/Major Repairs and Alterations | Date of Last Inspection : 1/18/02 | Date Inspection was due: 1/17/07 | Number. of Months Past Due as of March 15, 2007:62 |
| 5 | Maintenance Log/Recording Requirements | Date of Last Inspection : 1/25/02 | Date Inspection was due: 1/24/07 | Number. of Months Past Due as of March 15, 2007:62 |
| 6 | Reliability Program | Date of Last Inspection : 2/1/02 | Date Inspection was due: 1/31/07 | Number. of Months Past Due as of March 15, 2007: 61 |
| 7 | Airworthiness Release/Logbook Entry | Date of Last Inspection : 3/4/02 | Date Inspection was due: 3/3/07 | Number. of Months Past Due as of March 15, 2007: 60 |
| 8 | RII Training Requirements | Date of Last Inspection : | Date Inspection was due: | Number. of Months Past Due |

| | | | | |
|----|---|--|--|--|
| | | none | 9/30/05 | as of March 15, 2007: 80 |
| 9 | Appropriate Operational Equipment | Date of Last Inspection : none | Date Inspection was due: 9/30/05 | Number. of Months Past Due as of March 15, 2007: 80 |
| 10 | Major Repairs and Alterations Records | Date of Last Inspection : none | Date Inspection was due: 9/30/05 | Number. of Months Past Due as of March 15, 2007: 80 |
| 11 | Maintenance Facility/Main Base | Date of Last Inspection : none | Date Inspection was due: 9/30/05 | Number. of Months Past Due as of March 15, 2007: 80 |
| 12 | Weight and Balance | Date of Last Inspection : none | Date Inspection was due: 9/30/05 | Number. of Months Past Due as of March 15, 2007: 80 |
| 13 | Manual Currency | Date of Last Inspection : none | Date Inspection was due: 9/30/05 | Number. of Months Past Due as of March 15, 2007: 80 |
| 14 | Distribution (Manuals) | Date of Last Inspection : none | Date Inspection was due: 9/30/05 | Number. of Months Past Due as of March 15, 2007: 80 |
| 15 | Availability (Manuals) | Date of Last Inspection : none | Date Inspection was due: 9/30/05 | Number. of Months Past Due as of March 15, 2007: 80 |
| 16 | Supplemental Operations Manual Requirements | Date of Last Inspection : none | Date Inspection was due: 9/30/05 | Number. of Months Past Due as of March 15, 2007: 80 |
| 17 | Content Consistency Across Manual | Date of Last Inspection : none | Date Inspection was due: 9/30/05 | Number. of Months Past Due as of March 15, 2007: 80 |
| 18 | Maintenance Certificate Requirements | Date of Last Inspection : none | Date Inspection was due: 9/30/05 | Number. of Months Past Due as of March 15, 2007: 80 |
| 19 | Privileges Airframe and Powerplant | Date of Last Inspection : none | Date Inspection was due: 9/30/05 | Number. of Months Past Due as of March 15, 2007: 80 |
| 20 | RVSM Authorization | Date of Last Inspection : none | Date Inspection was due: 9/30/05 | Number. of Months Past Due as of March 15, 2007: 80 |
| 21 | Director of Safety | Date of Last Inspection : none | Date Inspection was due: 9/30/05 | Number. of Months Past Due as of March 15, 2007: 80 |

Source: FAA's database for ATOS

Inspection is considered overdue if not completed within 5 years from last inspection date.

*If no date was available, then October 1, 2000, was used to determine inspection status.

**Actual month/day unknown

Table 2. Inspectors Did Not Complete All Planned Inspections of Identified Risk Areas

| FAA Office | Number Planned | Total Number (%) Not Completed | Number (%) Not Completed That Were in Identified Risk Areas |
|--------------|-----------------------------------|---------------------------------|--|
| United | Inspections planned: 617 | Not completed: 259 (42%) | Inspections not completed in identified risk areas: 151 (58%) |
| Delta | Inspections planned: 582 | Not completed: 234 (40%) | Inspections not completed in identified risk areas: 49 (21%) |
| American | Inspections planned: 614 | Not completed: 168 (27%) | Inspections not completed in identified risk areas: 78 (46%) |
| Northwest | Inspections planned: 834 | Not completed: 147 (18%) | Inspections not completed in identified risk areas: 108 (74%) |
| US Airways | Inspections planned: 894 | Not completed: 130 (15%) | Inspections not completed in identified risk areas: 130 (100%) |
| Total | Inspections planned: 3,541 | Not completed: 938 (26%) | Inspections not completed in identified risk areas: 516 (55%) |

Exhibit A. Aircraft That Overflow AD-2004-18-06

| Aircraft | Cycles Past Due | Inspection Due | Inspection Completed | Months Overdue | Crack Found |
|-----------------|----------------------------------|---------------------------|---------------------------------|-----------------------------|--|
| Aircraft 1 | Number of Cycles past due: 1,821 | Inspection Due: 12-Jul-06 | Inspection Completed: 18-Mar-07 | Number of Months overdue: 9 | Crack found: 1 inch left, 1/4 inch right |
| Aircraft 2 | Number of Cycles past due: 1,623 | Inspection Due: 5-Jul-06 | Inspection Completed: 19-Mar-07 | Number of Months overdue: 9 | N/A |
| Aircraft 3 | Number of Cycles past due: 1,658 | Inspection Due: 24-Jul-06 | Inspection Completed: 19-Mar-07 | Number of Months overdue: 8 | N/A |
| Aircraft 4 | Number of Cycles past due: 1,561 | Inspection Due: 14-Jul-06 | Inspection Completed: 17-Mar-07 | Number of Months overdue: 9 | N/A |
| Aircraft 5 | Number of Cycles past due: 1,379 | Inspection Due: 13-Jul-06 | Inspection Completed: 16-Mar-07 | Number of Months overdue: 9 | N/A |
| Aircraft 6 | Number of Cycles past due: 1,765 | Inspection Due: 21-Jun-06 | Inspection Completed: 19-Mar-07 | Number of Months overdue: 9 | N/A |
| Aircraft 7 | Number of Cycles past due: 1,878 | Inspection Due: 18-Jun-06 | Inspection Completed: 19-Mar-07 | Number of Months overdue: 9 | N/A |
| Aircraft 8 | Number of Cycles past due: 1,453 | Inspection Due: 30-Jun-06 | Inspection Completed: 16-Mar-07 | Number of Months overdue: 9 | N/A |
| Aircraft 9 | Number of Cycles past due: 1,187 | Inspection Due: 26-Jun-06 | Inspection Completed: 18-Mar-07 | Number of Months overdue: 9 | N/A |
| Aircraft 10 | Number of Cycles past due: 1,347 | Inspection Due: 8-Sep-06 | Inspection Completed: 19-Mar-07 | Number of Months overdue: 7 | N/A |
| Aircraft 11 | Number of Cycles past due: 1,494 | Inspection Due: 16-Aug-06 | Inspection Completed: 23-Mar-07 | Number of Months overdue: 8 | N/A |
| Aircraft 12 | Number of Cycles past due: 1,248 | Inspection Due: 31-Aug-06 | Inspection Completed: 19-Mar-07 | Number of Months overdue: 7 | Crack Length not recorded |
| Aircraft 13 | Number of Cycles past due: 120 | Inspection Due: 28-Feb-07 | Inspection Completed: 17-Mar-07 | Number of Months overdue: 1 | N/A |
| Aircraft 14 | Number of Cycles past due: 1,435 | Inspection Due: 29-Aug-06 | Inspection Completed: 20-Mar-07 | Number of Months overdue: 7 | N/A |
| Aircraft 15 | Number of Cycles past due: 1,520 | Inspection Due: 20-Aug-06 | Inspection Completed: 19-Mar-07 | Number of Months overdue: 7 | N/A |
| Aircraft 16 | Number of Cycles past due: 1,517 | Inspection Due: 13-Aug-06 | Inspection Completed: 16-Mar-07 | Number of Months overdue: 8 | N/A |
| Aircraft 17 | Number of Cycles past due: 1,444 | Inspection Due: 26-Aug-06 | Inspection Completed: 18-Mar-07 | Number of Months overdue: 7 | N/A |

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| Aircraft 18 | Number of Cycles past due: 1,601 | Inspection Due: 27-Jun-06 | Inspection Completed:15-Mar-07 | Number of Months overdue:9 | N/A |
| Aircraft 19 | Number of Cycles past due: 1,315 | Inspection Due: 18-Jun-06 | Inspection Completed:17-Mar-07 | Number of Months overdue:9 | N/A |
| Aircraft 20 | Number of Cycles past due: 1,585 | Inspection Due: 25-Jun-06 | Inspection Completed:16-Mar-07 | Number of Months overdue:9 | N/A |
| Aircraft 21 | Number of Cycles past due: 720 | Inspection Due: 11-Dec-06 | Inspection Completed:18-Mar-07 | Number of Months overdue:4 | Crack found: 4 inch, 1 inch, and 2 inch |
| Aircraft 22 | Number of Cycles past due: 1,081 | Inspection Due: 27-Oct-06 | Inspection Completed:20-Mar-07 | Number of Months overdue:5 | N/A |
| Aircraft 23 | Number of Cycles past due: 1,753 | Inspection Due: 2-Jul-06 | Inspection Completed:19-Mar-07 | Number of Months overdue:9 | Crack found: 2" right, 1" left |
| Aircraft 24 | Number of Cycles past due: 1,682 | Inspection Due: 1-Dec-06 | Inspection Completed:27-Apr-07 | Number of Months overdue:5 | Crack Length not recorded |
| Aircraft 25 | Number of Cycles past due: 1,501 | Inspection Due: 9-Nov-06 | Inspection Completed:16-Mar-07 | Number of Months overdue:5 | N/A |
| Aircraft 26 | Number of Cycles past due: 289 | Inspection Due: 21-Jan-07 | Inspection Completed:18-Mar-07 | Number of Months overdue:2 | N/A |
| Aircraft 27 | Number of Cycles past due: 131 | Inspection Due: 8-Feb-07 | Inspection Completed:15-Mar-07 | Number of Months overdue:2 | N/A |
| Aircraft 28 | Number of Cycles past due: 229 | Inspection Due: 21-Feb-07 | Inspection Completed:23-Mar-07 | Number of Months overdue:1 | N/A |
| Aircraft 29 | Number of Cycles past due: 945 | Inspection Due: 6-Nov-06 | Inspection Completed:20-Mar-07 | Number of Months overdue:5 | N/A |
| Aircraft 30 | Number of Cycles past due: 726 | Inspection Due: 7-Dec-06 | Inspection Completed:16-Mar-07 | Number of Months overdue:4 | N/A |
| Aircraft 31 | Number of Cycles past due: 1,532 | Inspection Due: 6-Jul-06 | Inspection Completed:16-Mar-07 | Number of Months overdue:9 | N/A |
| Aircraft 32 | Number of Cycles past due: 1,765 | Inspection Due: 27-Jun-06 | Inspection Completed:23-Mar-07 | Number of Months overdue:9 | N/A |
| Aircraft 33 | Number of Cycles past due: 1,768 | Inspection Due: 17-Jun-06 | Inspection Completed:18-Mar-07 | Number of Months overdue:9 | N/A |
| Aircraft 34 | Number of Cycles past due: 1,796 | Inspection Due: 7-Jul-06 | Inspection Completed:16-Mar-07 | Number of Months overdue:9 | N/A |
| Aircraft 35 | Number of Cycles past due: 1,688 | Inspection Due: 2-Jul-06 | Inspection Completed:18-Mar-07 | Number of Months overdue:9 | N/A |

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| Aircraft 36 | Number of Cycles past due: 45 | Inspection Due: 12-Mar-07 | Inspection Completed:21-Mar-07 | Number of Months overdue:1 | N/A |
| Aircraft 37 | Number of Cycles past due: 1,844 | Inspection Due: 10-Jul-06 | Inspection Completed:18-Mar-07 | Number of Months overdue:9 | N/A |
| Aircraft 38 | Number of Cycles past due: 1,831 | Inspection Due: 12-Jul-06 | Inspection Completed:21-Mar-07 | Number of Months overdue:9 | N/A |
| Aircraft 39 | Number of Cycles past due: 1,742 | Inspection Due: 25-Jul-06 | Inspection Completed:20-Mar-07 | Number of Months overdue:8 | N/A |
| Aircraft 40 | Number of Cycles past due: 1,434 | Inspection Due: 3-Sep-06 | Inspection Completed:21-Mar-07 | Number of Months overdue:7 | N/A |
| Aircraft 41 | Number of Cycles past due: 718 | Inspection Due: 11-Oct-06 | Inspection Completed:18-Mar-07 | Number of Months overdue:6 | N/A |
| Aircraft 42 | Number of Cycles past due: 1,455 | Inspection Due: 7-Sep-06 | Inspection Completed:19-Mar-07 | Number of Months overdue:7 | N/A |
| Aircraft 43 | Number of Cycles past due: 1,666 | Inspection Due: 2-Aug-06 | Inspection Completed:19-Mar-07 | Number of Months overdue:8 | N/A |
| Aircraft 44 | Number of Cycles past due: 1,552 | Inspection Due: 1-Aug-06 | Inspection Completed:17-Mar-07 | Number of Months overdue:8 | N/A |
| Aircraft 45 | Number of Cycles past due: 634 | Inspection Due: 17-Dec-06 | Inspection Completed:20-Mar-07 | Number of Months overdue:4 | N/A |
| Aircraft 46 | Number of Cycles past due: 1,746 | Inspection Due: 19-Jul-06 | Inspection Completed:17-Mar-07 | Number of Months overdue:9 | N/A |
| N/A | Total number of cycles past due: 61,224 | N/A | N/A | Average number of months overdue: 7 | N/A |