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

(110–23)

HEARING

BEFORE THE

SUBCOMMITTEE ON
AVIATION

OF THE

COMMITTEE ON
TRANSPORTATION AND
INFRASTRUCTURE
HOUSE OF REPRESENTATIVES

ONE HUNDRED TENTH CONGRESS

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Washington, DC 20515

March 27, 2007

John L. Mica
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SUMMARY OF SUBJECT MATTER

TO: Members, Subcommittee on Aviation

FROM: Staff, Subcommittee on Aviation

SUBJECT: The Federal Aviation Administration's Oversight of Outsourced Air Carrier Maintenance

PURPOSE OF HEARING

The Subcommittee will meet on Thursday, March 29 at 10:00 a.m. in Room 2167 Rayburn House Office Building to receive testimony regarding the Federal Aviation Administration's (FAA) Oversight of Outsourced Air Carrier Maintenance.

BACKGROUND

To stay competitive and avoid bankruptcy, or recover from bankruptcy in the post September 11th era, many of the airline industry's legacy carriers have closed their own maintenance bases and have increased their use of outside maintenance companies to perform critical long term maintenance, including: airframe repairs, aging aircraft modifications, engine overhauls, and advanced avionics maintenance. While reducing costs is one reason air carriers have chosen to outsource maintenance, repair stations also provide specialized expertise and equipment in areas such as engine repairs that air carriers do not have in-house.

According to the Department of Transportation Inspector General (DOT IG), air carrier outsourcing has contributed to the elimination of over 27,000 maintenance jobs at mainline carriers since 2001. Based on Bureau of Transportation Statistics (BTS) data, in 2005, major passenger air carriers spent $3.91 billion, or 42.2 percent of their $9.27 billion in maintenance spending on outside maintenance companies.[1] In addition, in the first nine months of 2006, these carriers spent $3.19 billion, or 43.8 percent of their $7.28 billion in maintenance spending on outside maintenance companies.

[1] Major passenger air carriers include: Alaska Airlines, America West, Northwest Airlines, Expressjet Airlines, Atlantic Southeast Airlines, Southwest Airlines, AirTran Airways, Continental Air Lines, Comair, United Air Lines, JetBlue Airways, US Airways, Delta Air Lines, Mesa Airlines, American Airlines, American Eagle Airlines, and Frontier Airlines.

BTS data also indicates that, in 2005, combined major, national and large regional air carriers (including cargo carriers) spent $4.91 billion, or 35.5 percent of their $13.82 billion in maintenance spending on outside maintenance companies.[2] In the first nine months of 2006, these carriers spent $3.78 billion, or 37.2 percent of their $10.16 billion in maintenance spending on outside maintenance companies.

Currently, there are approximately 4,231 domestic and 697 foreign FAA-certificated repair stations. Whether maintenance is performed by the airlines or organizations they contract with, the airlines are responsible for maintaining oversight and ensuring the quality and safety of the maintenance performed on their aircraft. It is the FAA's responsibility to ensure that the airlines are conducting their oversight effectively. The FAA is responsible for reviewing an air carrier's procedures used to carry out oversight of this maintenance work, and ensuring that the repair station follows the procedures in the air carrier's approved maintenance program. In addition, the FAA is responsible for ensuring that a maintenance repair station meets the FAA's regulatory requirements under 14 C.F.R. part 145.[3]

Despite the financial hardship experienced by the air carriers since September 11th, U.S. aviation has had a remarkable safety record. According to the FAA, the three-year rate of fatal airline accidents is 0.023 per 100,000 departures, or 1 in every 4.4 million flights (including cargo accidents and single fatalities on the airport surface). The rate of fatal airline accidents involving passengers is about 0.01 per 100,000 departures, or about 1 in 10 million. Nevertheless, in FY 2006, FAA missed its target of 0.018 fatal accidents per 100,000 departures. This is because the U.S. experienced 4 fatal accidents in FY 2006. The FAA's target for 2007 is 0.010 fatal accidents per 100,000 departures, or 1 in 10 million departures. While the National Transportation Safety Board (NTSB) has yet to determine the probable cause of these accidents, they serve as a reminder that the Federal government must remain vigilant on aviation safety issues.

I. Fatal Accidents Involving Maintenance Issues

According to the NTSB, since 1996, there have been 13 major accidents involving maintenance issues (6 fatal, 8 involving contract maintenance, and 5 involving operator maintenance). The NTSB states that over the last 10 years, approximately 8 percent of all part 121 and scheduled part 135 air carrier accidents were attributable to maintenance. Listed below, with the most recent accident first, are the 6 major fatal accidents of U.S. registered aircraft where maintenance was a contributing factor.[4]

- **1/8/03, Raytheon 1900D, Air Midwest, Charlotte-Douglas International Airport, US Airways flight to Greenville, NC. Fatalities**: 21. **Probable cause**: The airplane's loss of pitch control during take-off. According to the NTSB, the loss of pitch resulted from the

[2] BTS air carrier categories are based on 12-month operating revenue. A major air carrier is one with over $1 billion in operating revenue, a national air carrier is one with $100 million to $1 billion in operating revenue, and a large regional carrier is one with $20 million to $100 million in operating revenue. Note on a per unit basis, engines and components have a higher repair cost than the airframe itself. Most of that work is contracted to the original manufacturer of the engine or component.

[3] Part 145 of the FAA's regulations sets forth the requirements that both domestic and foreign repair stations must meet, including: repair station certification, housing of facilities, equipment, materials and personnel; data; training, quality control, and manuals.

[4] The NTSB is currently investigating maintenance issues associated with the Chalk's Ocean Airways accident, which occurred on December 19, 2005. In that accident, the aircraft lost its right wing during flight and crashed off the coast of Miami, killing all 20 people on board.

incorrect rigging of the elevator system by a contract mechanic that had no previous experience on the Beech 1900 and admitted to omitting several steps in the maintenance manual. **Maintenance provided by**: an outside provider that subcontracted the work.

- **6/17/02, Lockheed Hercules C-130, Hawkins and Powers Aviation near Walker, CA. Fatalities**: 3. **Probable cause**: The in-flight failure of the right wing due to fatigue cracking in the center wing lower skin and underlying structural members (inadequate maintenance procedures to detect fatigue cracking). **Maintenance performed by**: the operator.

- **2/16/00, Boeing DC-8, Emery Worldwide Services near Sacramento, CA. Fatalities**: 3. **Probable cause**: Loss of pitch control resulting from the disconnection of the right elevator control tab (work card erroneously signed off on during maintenance of elevator assembly). **Maintenance performed by**: The NTSB was unable to determine if the maintenance was performed by the operator or an outside provider.

- **1/31/00, Boeing MD-80, Alaska Airlines, in sea, off Point Mugu. Fatalities**: 88. **Probable cause**: Loss of airplane pitch control resulting from the in-flight failure of the horizontal stabilizer trim system jackscrew assembly's acme nut threads. **Maintenance performed by:** the operator.

- **7/6/96, McDonnell Douglas MD-88, Delta Airlines, Pensacola, FL. Fatalities**: 2. **Probable cause**: The fracture of the left engine's front compressor fan hub, which resulted from the failure of the air carrier's inspection process to detect a detectable fatigue crack initiating from an area of altered microstructure that was created during the drilling process and that went undetected at the time of manufacture. Contributing to the accident was the lack of sufficient redundancy in the in-service inspection program. **Maintenance performed by:** the operator.

- **5/11/96, Douglas DC-9, ValuJet Airlines, Florida Everglades. Fatalities**: 105. **Probable cause**: Among other items, the failure of the maintenance provider to properly prepare, package, and identify unexpended chemical oxygen generators before presenting them to the carrier; the failure of ValuJet to properly oversee its contract maintenance program. **Maintenance performed by**: outside maintenance provider.

II. FAA Oversight of Domestic and Foreign Repair Stations

The 1996 ValuJet crash highlighted the need to increase oversight of outside maintenance contractors. The NTSB, as part of its ValuJet report, listed as a contributing factor the FAA's failure to adequately monitor ValuJet's heavy maintenance programs, including ValuJet's oversight of its contractors, and the outside repair station's certificate. In addition, the 2003 crash of Air Midwest focused attention on the lack of oversight by Air Midwest of the maintenance work being performed by its outside contractor, as well as the FAA's failure to oversee Air Midwest's maintenance program.

A. Domestic Repair Stations

There are approximately 4,231 FAA-certificated domestic repair stations, with 734 FAA inspectors having oversight responsibility over these repair stations. An inspector assigned to domestic repair station duties may also be assigned certification and oversight of airmen, designees,

general aviation aircraft, air operators, mechanic schools, complaint investigations, and accident/incident investigations.

According to the FAA, both the air carrier and the FAA inspect work done at repair stations. The air carrier conducts oversight through its Continuing Analysis and Surveillance System, which requires audits of the facilities working on the carrier's aircraft.

Domestically, the FAA does at least one comprehensive, in-depth inspection every year at each repair station. The inspection requirement is derived from the National Work Program Guidelines (NPG) Order issued annually, and is based on risk analysis of results from the previous year's surveillance. FAA's NPG establishes a base level of surveillance data that should be evaluated, including areas such as facilities, maintenance processes, technical data and training programs. The NPG also includes inspection requirements for all FAA-certificated entities, such as air carriers, repair stations, and pilots.

FAA inspectors perform on-site visits and review air carrier audits. FAA inspectors have comprehensive guidance for checking each of 15 safety areas. As each area is inspected, an assessment is recorded in a national database and is used to retarget resources and develop the following year's inspection program.

An FAA inspector follows similar procedures for conducting inspections at both domestic and foreign repair stations. An FAA inspector is not required to give notice prior to an inspection. However, the FAA states that as a practical matter, prior to an in-depth inspection, an inspector may notify the repair station to ensure appropriate personnel are available and any necessary coordination between the repair station and remote facilities or contractors subject to inspection is accomplished.

Additionally, the FAA states that any domestic or foreign repair station may be subject to team inspections by FAA inspectors based on regional or certificate holding district office direction as required by the NPG.

B. Foreign Repair Stations

There are approximately 697 FAA-certificated foreign repair stations, with 67 FAA inspectors responsible for oversight of those repair stations.[5]

Int'l Field Office Location	Number of Inspectors Assigned (airworthiness)	Number of Certificates/Repair Stations
Frankfurt	15	298
London	11	161
Miami	16	53
Dallas	5	21
San Francisco	13	61
Singapore	7	103
Total	**67**	**697**

Source: FAA

[5] As explained on the next page, there are 165 repair stations located in France, Germany, and Ireland, which are inspected by foreign aviation authorities on the FAA's behalf. These facilities are included in the repair station totals for the Frankfurt International Field Office.

In addition to repair station oversight, inspectors located in International Field Offices (IFO) outside of the U.S. have additional duties, including oversight of designated airworthiness representatives and inspection authorization renewals. Inspectors located in domestic IFOs (i.e., Miami, Dallas, San Francisco) have additional responsibilities for foreign air carrier part 129 maintenance program approvals.

According to the FAA, a foreign repair station will undergo at least one comprehensive annual review for the renewal of its certificate. Using various FAA databases, an FAA inspector will identify safety hazard and risk areas and target inspection efforts based on areas of greatest risk. While conducting the inspection, the FAA inspector verifies that the facility and personnel are qualified to perform the maintenance functions listed in the repair station's operations specifications. The entire inspection is accomplished during a single visit. Based on the size and complexity of the repair station, the visit may take several days and several inspectors to complete the inspection.

The FAA may also notify a foreign repair station prior to an inspection. According to the FAA, by notifying the facility it: (1) meets the repair station's security requirements; (2) ensures appropriate personnel are available; and (3) ensures coordination between the repair station and remote facilities or contractors subject to inspection is accomplished. The U.S. Embassy in that country and the national aviation authorities are also notified of an impending inspection.

The FAA notes that while the standards for foreign and domestic repair stations inspections remain the same, the promulgation of international agreements has impacted FAA foreign repair station certification and surveillance activities.

Repair stations located in countries in which the U.S. has entered into a Bilateral Aviation Safety Agreement and Maintenance Implementation Procedures (BASA/MIP) perform maintenance under FAA's regulatory authority, but are evaluated and inspected by that country's national aviation authority on behalf of the FAA. Currently, the U.S. has individual BASA/MIP agreements with France, Germany, and Ireland. There are 165 repair stations located in these countries that are inspected by foreign aviation authorities on the FAA's behalf.

The FAA also reserves the right to inspect any repair station located in a country with a BASA/MIP agreement and can take action against a repair station as permitted under its regulatory framework. Additionally, while the national aviation authorities currently perform certification and surveillance activities for the FAA in France, Germany, and Ireland, they can only make recommendations to the FAA for the certification and renewal of a repair station. The FAA reserves the right to certificate or renew repair stations located in these countries.

The FAA states that it conducts audits of the national aviation authorities, reviews their inspector guidance materials, inspector staffing levels and training programs, and performs joint repair station audits with the authorities' inspectors. In addition, the FAA conducts sample inspections of repair stations located within the countries covered by the agreement. According to the FAA, of the 165 foreign repair stations that are under BASA/MIP agreements with France, Germany, and Ireland, the FAA conducted 35 sample inspections between October 2005 and October 2006.

Generally, there are four areas in which requirements differ between domestic and foreign repair stations. These differences are highlighted below.

Domestic FAA-Certificated Repair Stations	Foreign FAA-Certificated Repair Stations
Do not pay for certification costs incurred by FAA	Pay fee for certification and renewal costs incurred by FAA
FAA certification lasts indefinitely	FAA certification must be renewed every 1 to 2 years
FAA requires employees to be subject to drug and alcohol testing	FAA does not require employees to be subject to drug and alcohol testing[6]
Certain repair station personnel are required to be certificated by FAA	Repair station personnel are not required to be certificated by FAA. However, personnel must meet certain training and qualification requirements. Additionally, personnel may be certificated by the aviation authority where they are located.

Source: DOT IG, 2007

III. Office of Inspector General Reports

The DOT IG has conducted several audits of the FAA's safety oversight and has issued two key reports in the area of repair station maintenance.

A. Oversight of Domestic and Foreign Repair Stations

In July 2003, the DOT IG issued a report on *Air Carriers' Use of Aircraft Repair Stations* that was highly critical of FAA oversight of both domestic and foreign certificated repair stations. In the report, the DOT IG criticized the FAA for placing too much emphasis on its oversight of air carriers' in-house maintenance programs, despite the increased outsourcing of that maintenance to both foreign and domestic repair stations. The DOT IG found several weaknesses in repair station operations in 86 percent of the repair stations visited (12 domestic and 9 foreign repair stations). Those weaknesses include: using improper parts and equipment, inadequate proof of training and qualifications, lack of policies and procedures, and uncorrected repetitive deficiencies.

The DOT OIG made several recommendations to improve FAA's oversight, including that the FAA must determine trends in air carriers' use of repair stations; find out which repair stations air carriers are using to perform maintenance; perform more detailed reviews of those facilities air carriers use the most; and take steps to ensure foreign authorities are following FAA standards in conducting inspections.

The FAA concurred with the IG recommendations and created the Enhanced Repair Station Oversight System, a risked-based oversight system for domestic and foreign repair station surveillance. The FAA states that such a risk-based system improves its ability to capture data and target its inspector resources toward areas of identified risk.

With respect to oversight of foreign repair stations, the DOT IG found at some of the facilities inspected that: inspection documentation was incomplete, incomprehensible or in a foreign language; FAA standards were not emphasized during inspection; and the FAA arbitrarily limited its sample inspections to 10 percent. In response, the FAA eliminated the 10 percent restriction on

[6] According to the FAA, it does not require drug and alcohol testing of foreign repair station personnel due to national sovereignty concerns. However, the FAA reports that a number of foreign repair stations require drug and alcohol testing.

surveillance of repair stations in countries with BASA/MIP; clarified policies and procedures to ensure that FAA was notified of changes to certificated repair stations operations that impact FAA requirements for FAA approval; and implemented procedures to capture results from foreign aviation authority inspections into a FAA database.

The DOT IG has closed all but two of its nine recommendations from its 2003 report. The two recommendations that are still open relate to the need for FAA to obtain better information on where maintenance is performed. The FAA has developed a quarterly utilization report, which it asks air carriers to submit listing their top ten most used maintenance providers in that quarter. According to the DOT IG, it still has concerns that the form is not mandatory and that the information being submitted is inconsistent from carrier to carrier.

B. Non-Certificated Repair Facilities

In a December 2005 study, *Air Carrier Use of Non-Certificated Repair Facilities*, the DOT IG found that there is another segment of the industry that is widely used by air carriers but is neither certificated nor routinely reviewed by the FAA: non-certificated repair facilities. While these non-certificated facilities have been used for years for minor maintenance, the DOT IG found that these facilities are performing much more work that is critical to the airworthiness of an aircraft but without the same oversight and regulatory requirements as certificated repair facilities.

A certificated repair station is one that has been evaluated by FAA to verify that they have the staff and equipment needed to complete the type of maintenance work the facility is approved to perform, such as engine overhauls. A non-certificated repair facility is one that has not been evaluated by FAA. With regard to non-certificated repair facilities, the FAA states that the primary responsibility for oversight of these facilities rests with the air carrier.

Some of the key regulatory differences between these entities are shown in the table below.

Requirement	Certificated Repair Station	Non-Certificated Facility
FAA Inspections	Annual inspection required	No requirement
Quality Control System	Must establish and maintain a quality control system that ensures that repairs performed by the facility or a subcontractor are in compliance with regulations	No requirement
Reporting Failures, Malfunctions, and Defects	Must report failures, malfunctions, and defects to FAA within 96 hours of discovery	No requirement
Personnel	Must have designated supervisors, inspectors, and return-to-service personnel	No requirement
Training Program	Required as of April 2006	No requirement
Facilities and Housing	If authorized to perform airframe repairs, must have facilities large enough to house the aircraft they are authorized to repair	No requirement

Source: DOT IG report, *Air Carrier Use of Non-Certificated Repair Facilities* (AV-2006-031)

The FAA allows maintenance to be conducted at a non-certificated facility as long as it is overseen by an FAA-certified mechanic. The DOT IG found that relying on the expertise of an individual mechanic is an inadequate substitute for work performed at a certificated repair station,

which is required to have more layers of oversight and quality control for maintenance and repair. The DOT IG also found that there was insufficient oversight of these non-certificated facilities by the FAA and the six airlines covered by the study. The study also found that the FAA was not aware that these non-certificated maintenance shops were being used increasingly for more than just emergency repairs.

The DOT IG recommended to FAA that it correct the disparity between certificated and non-certificated repair stations by: inventorying air carrier vendor lists and identifying which non-certificated facilities perform critical maintenance functions; expanding its maintenance oversight program to include non-certificated facilities if it is not going to limit the scope of work that such facilities are going to perform; reviewing air carrier audit programs for non-certificated facilities and the employees of these contracted facilities to ensure that they meet the FAA and air carrier requirements; and determining whether air carriers evaluate the background, experience, and qualifications of temporary maintenance personnel. In addition, the DOT IG suggested that the FAA consider whether it should limit the type of work non-certificated repair stations can perform.

According to the FAA, in response to the DOT IG's recommendations, it issued inspector guidance material reinforcing the current regulatory requirements for air carriers to properly qualify and authorize persons performing maintenance work for the air carrier. For example, the FAA now approves maintenance functions outsourced by repair stations to a non-certificated source. However, the DOT IG is concerned that the approval process does not extend to air carriers outsourcing repairs directly to a non-certificated source. Additionally, the FAA developed and revised inspector guidance for the safety oversight of contract providers to emphasize existing air carrier requirements and implement new inspector guidance.

The DOT IG states that the FAA's new inspector guidance falls short because while it requires inspectors to determine whether air carriers have certain procedures in place to oversee contracted maintenance, it does not require inspectors to assess the effectiveness of those procedures. The DOT IG also states that FAA has not addressed a number of other recommendations in the inspector guidance. For example, FAA has not developed an effective mechanism for determining which non-certificated facilities perform scheduled and critical maintenance for air carriers.

IV. Air Carriers Role in Ensuring Oversight of Maintenance Providers

Air carriers are responsible for the safety and airworthiness of their aircraft. Airlines that utilize contract maintenance providers conduct their own audits and surveillance of those facilities. According to the Air Transport Association (ATA), an airline that is considering outsourcing its maintenance will usually conduct a preliminary investigation of a potential vendor to verify that the repair station has the capacity to perform the contemplated work. The preliminary investigation would typically involve a review of the repair station's operations specifications and manuals (including its quality control and training manuals).

If an air carrier finds that the repair station has the capacity to perform the work, the air carrier would then conduct an on-site audit of the facility to observe the facilities, personnel, tooling and the accomplishment of day-to-day activities. Such an onsite audit would include a review of: training records of inspectors, technicians and supervisors; validity of individual FAA certificates held by individuals that are in charge of or who perform maintenance; procedures for handling

technical data and maintenance records or other documentation; tool calibration and part handling procedures; procedures for handling material with a limited shelf life; procedures for the disposal of scrap parts; inspection procedures; and procedures for controlling work processes. In addition, the air carrier would verify the repair station's compliance with FAA regulatory requirements and adherence to the repair station's own manuals as well as any available audit reports and corrective actions taken to address findings in those reports.

The ATA states that if a repair station is selected to perform maintenance, an air carrier would perform similar on-site audits on a regular basis for the duration of the contract. In addition, an air carrier would have on-site representatives, who are responsible for monitoring and coordinating the repair station's daily activities related to the air carrier's equipment. Because they are located at the repair station facility, the air carrier representatives are frequently involved with final inspections and normally provide the air carrier's approval for service.

V. FAA Inspector Staffing

One of the key challenges facing the FAA is inspector staffing. Both the DOT IG and the Government Accountability Office (GAO) have expressed concern about potential attrition in the FAA's inspector workforce.[7] According to the DOT IG, by 2010, over one-third of FAA's inspector workforce will be eligible to retire.

In 2007, the FAA expects to lose approximately 200 inspectors[8] and to hire 90 additional inspectors (290 inspector positions will be hired in total based on backfilling lost positions). According to the FAA, its FY 2008 budget requests 87 inspectors, thereby providing 177 additional inspector positions above the FY 2006 end of year staffing level of 3,868, for a total of 4,045 inspector positions.

In 2006, the National Research Council reported that FAA lacks staffing standards for inspectors and recommended that the FAA develop a new staffing model to determine its inspector staffing needs and to better target its inspector resources.

VI. Security

The FAA oversees the safety of repair stations, but not the security of the facilities. To address the security oversight of repair station facilities, Congress passed Vision 100 (P.L. 108-176) in December 2003, which mandated that the Transportation Security Administration (TSA) issue regulations to ensure the security of foreign and domestic repair stations certificated by FAA, as well as to complete a security review and audit of foreign repair stations certificated by the FAA. Vision 100 gave TSA eight months to issue final regulations to ensure the security of domestic and foreign repair stations. Under Vision-100, if the security audits are not completed within eighteen months after the final regulations are issued, then the FAA would be barred from certifying any foreign

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[7] *See* March 6, 2007 DOT IG testimony, *Top Management Challenges Facing the Department of Transportation*, before the House Committee on Appropriations, Subcommittee on Transportation, Housing and Urban Development, and Related Agencies, at p. 8; March 22, 2007 GAO testimony, *Key Issues in Ensuring the Efficient Development and Safe Operation of the Next Generation Air Transportation System*, before the House Aviation Subcommittee, at p. 24.

[8] The FAA states that its annual attrition rate is approximately 5.5 percent. Note that the term inspectors includes both aviation safety inspectors as well as manufacturing safety inspectors.

repair stations until the audits are completed for existing stations. To date, the TSA has not issued a proposed rule. Although the TSA will not be testifying at this hearing, the Subcommittee has raised this issue with TSA Administrator Hawley and expects a progress report on the proposed rule by early April.

WITNESSES

Panel I:

Mr. Nicholas Sabatini
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Federal Aviation Administration

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

Panel II:

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President
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Mr. James C. Little
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HEARING ON THE FEDERAL AVIATION ADMINISTRATION'S OVERSIGHT OF OUTSOURCED AIR CARRIER MAINTENANCE

Thursday, March 29, 2007

HOUSE OF REPRESENTATIVES,
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
SUBCOMMITTEE ON AVIATION,
Washington, DC.

The Subcommittee met, pursuant to call, at 10:00 a.m., in Room 2167, Rayburn House Office Building, the Honorable Jerry F. Costello [Chairman of the Subcommittee] presiding.

Mr. COSTELLO. The Subcommittee will come to order. The Chair will ask all Members, staff and everyone in the room to turn off electronic devices or turn them on vibrate.

The Subcommittee is meeting today to hear testimony on the Federal Aviation Administration's oversight of outsourced air carrier maintenance. Let me say that the Chair will give an opening statement. We will call on the Ranking Member for his opening statement or comments.

I want to make note of the fact that the Ranking Member takes his responsibilities so seriously with this Subcommittee that instead of going to the White House this morning, he is here to hear your testimony. We appreciate Mr. Petri being here.

I welcome everyone to this hearing on the Federal Aviation Administration oversight of outsourced air carrier maintenance. This hearing is the first in a series of hearings on aviation safety and the Federal Aviation Administration's oversight of outsourced maintenance.

Although the United States has the safest air transportation system in the world, we must not be complacent about our success. The Department of Transportation's Inspector General lists aviation safety, performing oversight that effectively utilizes inspection resources and maintains aviation system safety, as one of the Department of Transportation's top 10 management challenges. Over the last 10 years, there is a growing trend by airlines looking to trim costs to outsource their maintenance work to both domestic and foreign repair stations.

The DOT IG will testify today that over the last 10 years, air carriers continue to increase the percentage of costs spent on outsourced maintenance from 37 percent to 62 percent in that 10 year period. The IG also notes that more and more work is being outsourced to foreign repair stations.

A July 2005 Wall Street Journal article stated that U.S. carriers pay between $65 and $75 per hour, including wages and benefits, while outside repair stations in North American, Europe and Asia pay about $40 to $50 an hour, and Latin American repair stations pay as little as $20 to $26 an hour. As a result, U.S. airlines are relying more heavily on foreign contractors to perform everything from routine maintenance to major overhauls. We must make certain that the FAA has a sound system to oversee maintenance work conducted outside the United States.

According to the FAA, there are 4,231 domestic and 697 foreign FAA-certificated repair stations with approximately 801 FAA safety inspectors overseeing them. Both the DOT IG and the Government Accountability Office have expressed concerns about potential attrition in the FAA's inspector workforce. I am told that over one-third of the FAA inspectors will be eligible to retire by the year 2010. I am also told that since the end of fiscal year 2006, the FAA has already lost 77 inspectors.

In addition, I am concerned about the level of staffing in the FAA's international field offices, which are responsible for overseeing foreign repair stations. The Singapore IFO only has 7 inspectors to oversee 103 repair facilities. In September of last year, this Subcommittee held a safety hearing where we had Mr. Sabatini who testified, among others. I asked the question at that time if in Mr. Sabatini's opinion we had adequate inspector staffing in Asia out of the Singapore office to inspect the 103 repair facilities. The answer was that we could always use more staff, but we have adequate staffing. When I asked the question, can you in fact tell this Committee that each of those facilities, the repair stations, the 103, had a physical visit, on-site visit by one inspector in a 12 month period, he could not say that that was the case. When I asked if he could testify that those 103 facilities at least had a visit, physical visit, one time in a 2 year period, a 24 month period, he could not state that they had.

There is no question that we must make the investments in the FAA's work force now, so that they can meet the new challenges for maintaining the highest level of safety in this changing aviation environment, including ensuring proper oversight of domestic and foreign repair stations. Last year, the National Research Council reported that the FAA lacked staffing standards for inspectors and recommended that the FAA undertake a holistic approach to determine its staffing needs. It is incumbent upon the FAA to act on this recommendation, so that we can have a sufficient number of inspectors in the right places.

Over the last few years, the DOT IG has made several recommendations with regard to the FAA's oversight of foreign and domestic repair stations, suggesting that inspectors focus their oversight on high-risk areas. The FAA has since moved to a high-risk based system for maintenance oversight. But full implementation has not happened yet.

In a December 2005 report from the DOT IG, they found that an increasing amount of scheduled airline maintenance is being performed at non-certificated repair facilities and that the FAA was unaware of the extent of this practice. Non-certificated facilities are not required to meet the same standards, such as quality assurance

and training programs, as certificated FAA repair stations. The DOT IG made a recommendation to the FAA that it should consider limiting the type of work that these contractors can perform. I look forward to hearing from both the IG and FAA on the progress of that recommendation.

The FAA inspector workforce has also raised concerns about staffing and insufficient funding for travel and their impact on conducting inspections, as well as moving to a risk-based oversight system. Mr. Tom Brantley, the President of the Professional Airway System Specialists, PASS, represents the FAA safety inspector workforce. He is here today and we will hear from him in greater detail about these concerns as he testifies on the second panel.

Some have suggested that perhaps moving to some form of a standardized maintenance practice might improve safety. Each airline has different standards for maintaining their aircraft with repair stations required to perform their maintenance work in accordance with each individual air carrier's manual and maintenance program. I would like to hear from our witnesses as to how they feel about moving to some type of a standardized system.

In contrast to the growing maintenance outsourcing trend, Mr. David Campbell from American Airlines has a commendable story to tell, as American performs 100 percent of their own heavy maintenance in-house. In addition, American has actually in-sourced work and I think we will hear his testimony this morning that in fact American will do about $175 million in third party revenue this year. So we look forward to hearing his testimony on quite a success story at American Airlines.

In March of 2005, a joint team from American's aircraft maintenance and overhaul base in Tulsa announced a breakthrough goal to generate $500 million in value creation which would turn the maintenance facility base into a profit center. The Tulsa base announced just last month that it had reached the $501 million mark, exceeding its goal. American's innovation and cooperation between the airline and its unions demonstrates that in-house maintenance is working and is profitable.

We must provide proper funding, close oversight and real standards of accountability to ensure that our aviation system remains the safest in the world.

With that, I want to thank all of our witnesses for being here today and I look forward to hearing their testimony.

Before I recognize the Ranking Member for his opening statement, I would ask unanimous consent to allow two weeks for all Members to revise and extend their remarks and to permit the submission of additional statements and materials by Members and witnesses. Without objection, so ordered.

At this time, the Chair would recognize the Ranking Member for his opening statement or comments, Mr. Petri.

Mr. PETRI. Thank you, Mr. Chairman. I appreciate your holding this important hearing.

Today we will explore how air carriers conduct and the Federal Aviation Administration oversees aircraft maintenance. We are holding this hearing at a time when the Nation's aviation system is the safest it has ever been in our Nation's history.

Nevertheless, safety must be the number one priority for this Committee, for the FAA, for the airlines and for repair stations. Therefore, I look forward to hearing from representatives of all these groups today.

It is no surprise that in reaction to and recovering from September 11th, severe acute respiratory syndrome, increasing air fuel prices, bankruptcies, a $35 billion net loss for 2001 through 2005 as well as other impacts to the marketplace, the airline industry has made adjustment to how they conduct their business. Due to aggressive restructuring, we have a leaner airline industry, 800-plus fewer airplanes taken out of the system, 28 percent fewer airline employees and 26 percent less airline debt, sometimes through bankruptcy restructuring.

At the same time, the aviation industry has become one of the most global-oriented markets in the world. U.S. carriers buy foreign-manufactured aircraft and foreign air carriers buy U.S.-manufactured aircraft. Both of the major commercial aircraft manufacturers have component parts made all over the world. The international influence of the industry is also present in aircraft maintenance. Aircraft repair facilities are a highly regulated and vital part of our economy, employing over 195,000 people in each of our 50 States and approximately 697 foreign FAA-certificated repair stations. There are also over 1,000 European aviation safety agencies, certificated repair facilities, in our Country. Air carrier restructuring has also seen a shift in how aircraft maintenance is conducted by air carriers.

While reducing costs is one reason for the shift, an argument is made that repair stations provide specialized expertise in areas such as engine repairs that the air carriers do not have in-house. According to the Bureau of Transportation statistics, in 2005 combined major national and regional air carriers, including cargo carriers, spent 35 percent of their $13.8 billion maintenance spending on outside maintenance companies. According to the National Transportation Safety Board, since 1997, only 8 percent of all commercial, commuter and on-demand air carriers accidents were attributable, at least in part, to maintenance issues.

Representatives of the FAA and air carriers are here today to explain how maintenance oversight for both domestic and foreign repair stations is conducted in light of the changing and internationalized marketplace. I understand that in the past there have been some questionable maintenance practices at facilities, both in the United States and elsewhere. Obviously, the FAA should take appropriate and swift action in these situations, and I look forward to hearing how they address such situations.

Likewise, I hope to gain better understanding of the allegations that the FAA does not have the manpower to inspect repair stations, particularly foreign repair stations. While these issues are not new to the Subcommittee, it is important that we receive periodic updates from the FAA and the industry, particularly in light of the changing marketplace.

I look forward to hearing the witnesses' testimony, and Mr. Chairman, I yield back whatever time I have remaining.

Mr. COSTELLO. I thank the Ranking Member for his opening statement.

Let me say to all Members that we did a unanimous consent request to enter opening statements into the record and we would ask you to do so. Is there any Member at this time that has an opening statement they want in the record? Mr. Carnahan, I understand you have a statement that you will enter into the record.

Mr. CARNAHAN. Yes, Mr. Chairman, thank you.

Mr. COSTELLO. Thank you.

Let me introduce our first panel of witnesses. Mr. Nick Sabatini, who has been with us many times, is the Associate Administrator for Aviation Safety at the FAA. He is here and has brought another valued member of his team at the FAA, Mr. Ballough. We also have the Inspector General of the U.S. Department of Transportation, who has testified before this Committee before, Mr. Scovel.

I would ask at this time, Mr. Sabatini, you will be recognized. Your full statements all will be entered into the record. We have your statements and I have had an opportunity to review them. So we would ask that you summarize your statements in five minutes or less, so that we can have plenty of time for questions from Members.

So at this time, Mr. Sabatini, you are recognized.

TESTIMONY OF NICHOLAS SABATINI, ASSOCIATE ADMINISTRATOR FOR AVIATION SAFETY, FEDERAL AVIATION ADMINISTRATION, ACCOMPANIED BY: JAMES J. BALLOUGH, DIRECTOR, FLIGHT STANDARDS SERVICE, FEDERAL AVIATION ADMINISTRATION; THE HONORABLE CALVIN L. SCOVEL, III, INSPECTOR GENERAL, UNITED STATES DEPARTMENT OF TRANSPORTATION

Mr. SABATINI. Good morning, Mr. Chairman Costello, Congressman Petri, Members of the Subcommittee. As you said, I am assisted here today by Jim Ballough, the Director of the Flight Standards Service.

I am pleased to appear before you once again, this time to discuss FAA oversight of air carrier maintenance that is outsourced to repair stations, both domestically and abroad. I know the industry trend to outsource more of its maintenance in recent years has been a concern for some of you. The concern is that carriers are making maintenance decisions to cut costs, and that less costly maintenance is less safe maintenance.

This assumption implies that safety is being compromised as more maintenance is being outsourced. I am here today to reassure you that the quality of maintenance is not compromised simply because it is not being done by an air carrier. No less an authority that the former Department of Transportation Inspector General, Ken Meade, testified before Congress that use of these stations is not a question of quality of maintenance, but rather an issue of oversight. We agree, which is why the FAA is continually improving and refining our oversight of maintenance, no matter where it is performed or by whom.

Let me start by stating the obvious: the system is safe. As the Subcommittee well knows, this is the safest period ever in the history of aviation. Even so, our goal as always, is to continue to improve safety. I would like to share with you a chart that goes to the hearing of this hearing. The lines represent the percentage of

maintenance that is being outsourced and the accident rate per 100,000 departures. I think this picture is worth 1,000 words.

Although the percentage of outsourcing has never been higher, the accident rate has never been lower. These statistics amply demonstrate that aviation safety is not dependent on airlines performing their own maintenance. In recent years, we have refined the way in which we provide maintenance oversight. Previously, our oversight was based largely on inspector knowledge and information that was available as a result of individual inspections. This approach was the best we could do at the time, but it was far from comprehensive. The effectiveness of our oversight could vary from facility to facility.

What we are doing now is managing risk and requiring system safety. Let me explain what I mean by system safety. System safety is extremely comprehensive. It is a sophisticated approach to ensuring that everything is in place to obtain the information that can identify areas of vulnerability in time to address it before safety is compromised. It must be clear who is responsible for different aspects of the operation. The responsible person must have the authority to take necessary action. There must be procedures in place to execute required actions. There must be controls in place to ensure that the system consistently provides the service or product it was designed to produce.

There must be oversight and auditing procedures in place to independently evaluate the effectiveness and consistency of the operation. And lastly, there must be interface procedures in place to ensure that different parts of the organization are effectively talking to each other. Consistency is the goal.

I would now like to turn my focus to foreign repair stations, because I know they have been of particular interest to this Subcommittee. As is the case with domestic repair stations, there is an incorrect perception that a carrier's use of a foreign repair station is somehow unsafe or done solely to reduce maintenance costs. I know there have been a number of efforts to restrict U.S. air carriers' ability to use foreign repair station.

But I do not believe that these efforts would enhance safety. The foreign repair station must meet the same standards that we apply to repair stations in the United States, or we will simply not certify them. Safety is addressed because we require that all aircraft that are registered in the United States be maintained to U.S. standards, regardless of where they operate. Due to the global nature of aviation, we must have repair stations that meet U.S. standards throughout the world.

Finally, keep in mind, as is the case when a carrier uses a domestic repair station, the carrier has the ultimate responsibility to ensure that the maintenance is being performed appropriately. All of this adds up to a great deal of supervision. The repair station has internal controls, foreign government oversight, airline oversight and FAA oversight. In fact, it is important to remember that by its nature, aviation is truly an international enterprise.

An aircraft, especially in commercial aviation, contains parts manufactured all around the world. The original equipment manufacturer, the OEM, has a wealth of expertise in repairing their products. In addition, their parts have warranties. It would be ex-

tremely unwise to restrict a U.S. air carrier's ability to use OEM maintenance, even if the OEM is abroad. In fact, the expertise of OEMs is so considerable and their work so consistent that maintenance is often outsourced to them regardless of whether the maintenance being performed is on a part they manufacture.

Just as aviation safety is in no way compromised by allowing U.S. carriers to fly aircraft made in Europe and Brazil or in Canada, so too is safety in no way compromised by allowing other countries to conduct repair and maintenance on our aircraft. I understand and appreciate this Subcommittee's concern about the increased use of repair stations in this Country and abroad. Obviously, we share a common goal to find ways to improve safety at a historically safe period in U.S. aviation.

I can assure you that my office is totally committed to making whatever adjustments the situation demands when it comes to safety oversight. Hearings like the one today are a necessary dialogue. I think the refinements we have made to how we oversee maintenance in recent years are good ones. But we cannot sit still. There will always be ways to improve, and we will continue to look for them.

This concludes my statement, Mr. Chairman. I will be happy to answer your questions at this time.

Mr. COSTELLO. We thank you, Mr. Sabatini. Are you prepared to make a statement as well, Mr. Ballough?

Mr. BALLOUGH. No, Mr. Chairman.

Mr. COSTELLO. Very good. The Chair then recognizes the Inspector General, Mr. Scovel.

Mr. SCOVEL. Chairman Costello, Ranking Member Petri, Members of the Subcommittee, we appreciate the opportunity to testify this morning. At the outset, it is important to note that while the United States has the most complex aviation system in the world, it is also the safest. Multiple layers of controls and air carrier operations and maintenance process, along with FAA's oversight, are largely responsible for the high level of safety that we have seen in the last five years. Air carriers have outsourced maintenance for years, because external repair facilities can complete repairs for less cost and provide services such as engine repair that would otherwise require air carriers to have specialized expertise and staff.

However, in recent years, the use of external repair facilities by air carriers has become prevalent. From 1996 to 2005, nine of the largest air carriers increased the percentage of their outsourced maintenance from 37 percent to 62 percent, or nearly $3.4 billion of the $5.5 billion spent on maintenance.

Mr. Chairman, it is important to note that the issue is not where maintenance is performed, but that maintenance requires effective oversight. Our past efforts have identified challenges in FAA's ability to effectively monitor the increase in outsourcing. For example, in July 2003, we reported that FAA had not shifted its oversight of aircraft maintenance to the locations where maintenance was being performed. FAA has taken a number of steps to improve its oversight.

However, the continuous growth in outsourcing underscores the need for FAA to remain vigilant in its efforts to continually improve oversight. Today I would like to discuss three areas for

strengthening FAA's oversight of outsourced air carrier maintenance.

First, advancing risk-based oversight systems. FAA recognizes the challenges posed by increased outsourced maintenance, and has taken steps to move its oversight for air carriers and repair stations to risk-based systems. Both systems are designed to help FAA inspectors focus their oversight on areas that present the greatest safety risks, based on analysis of data. FAA is clearly on the right path.

However, the risk-based systems are not yet at an end state. FAA's risk-based system for air carriers must be more comprehensive. In March 2006, FAA issued new guidance to aid inspectors in evaluating air carrier changes. By the end of this year, FAA plans to complete implementation of this risk-based system to all carriers. Currently on 57 of the 118 commercial air carriers are subject to it. As more air carriers are added, effective use of the risk-based system will become even more important.

In September 2006, FAA began using an automated risk-based oversight system for repair stations. To avoid repeating the implementation problems experienced with its air carrier system, FAA must ensure that inspectors are well trained on the new system and effectively use it to oversee repair stations.

Second, FAA must determine where the most critical maintenance is performed and how it should be monitored. FAA cannot effectively implement a risk-based system for oversight of aircraft maintenance if it does not know where the maintenance is performed. In July 2003 and December 2005, we reported that FAA did not have good systems for determining which repair facilities air carriers were using to perform their most critical maintenance.

There are over 4,000 domestic and nearly 700 foreign FAA-certified repair stations. In addition, there are about 900 repair facilities in Canada that can be used by U.S. carriers. Air carriers also use domestic and foreign non-certificated repair facilities. In response to our 2003 report, FAA implemented a system in fiscal year 2007 for air carriers to report the top 10 critical maintenance providers used each quarter. However, this process is ineffective, in our estimation, because the reports are voluntary and FAA does not have inspectors to verify that information. As long as the process is voluntary, FAA cannot be assured that it is getting the accurate and timely information needed to determine where it should focus its inspections.

FAA must also develop a mechanism to identify non-certificated repair facilities performing critical maintenance for air carriers. Prior to our December 2005 review, FAA was unaware that air carriers were using non-certificated facilities to perform critical repairs, such as engine replacements. FAA does not know how many non-certificated maintenance facilities air carriers currently use. In our review, we sampled 19 air carriers and found that all 19 were using non-certificated facilities to some extent. FAA must determine which non-certificated facilities perform critical and scheduled maintenance and then decide if it should limit the type of work these facilities perform.

Mr. Chairman, if I may ask for another minute? Thank you, sir.

Third, ensuring inspectors are well positioned and properly trained to adequately oversee maintenance outsourcing. FAA has approximately 3,865 inspectors located in offices throughout the United States and in other countries to oversee air carrier maintenance operations, a task made more difficult by the rapidly changing aviation environment. This makes it imperative for FAA to maintain a sufficient number of inspectors to perform safety oversight. By 2010, 44 percent of the work force will be eligible to retire.

However, maintaining an adequate work force is only one of the challenges FAA faces with its inspectors. FAA needs a process for determining the number of inspectors needed and where they should be placed. We found some inspectors were not assigned to locations where they were needed most and we also found inconsistencies in inspector work loads.

At the request of this Subcommittee, in September 2006, the National Research Council completed a study of FAA's current methods for allocating inspector resources. The Council found FAA needs to develop an effective staffing model. The Council stressed that FAA must ensure that its safety inspectors are sophisticated data base users with knowledge of system safety principles and an analytical approach to their work.

This concludes my statement, Mr. Chairman, and I would be happy to answer any questions that you or other Members of the Subcommittee may have.

Mr. COSTELLO. We thank you for your testimony.

Mr. Sabatini, before I ask some questions, let me respond to a comment you made in your opening statement. You indicated that there is a perception that foreign repair stations are not safe and that you would contend that they in fact are. Let me just say that, let me go back to the point that, I don't think anyone is saying that there are repair stations that are unsafe.

But the fact of the matter is that the last time you testified before this Subcommittee, in September, when I asked you the question, foreign repair stations, 7 inspectors for 103 facilities, could you tell this Subcommittee that in fact, physically each of those 103 facilities received a physical inspection on-site by an inspector at least one time in a year, and you could not tell us that. And number two, when I asked the question, could you in fact testify and tell this Subcommittee that in a two year period that each of the three facilities had an inspector on-site and you could not tell us that.

So it leaves the impression, certainly to me, and I think many others, that foreign repair stations do not come under the same scrutiny as domestic repair stations here in the United States. If it is because you do not have adequate staff, then we ought to get to that point and try and address it.

But having said that, let me get into questions. We are going to have, I understand, our first vote at 10:45. So I would ask you, I have a series of questions, I would ask you to be very brief if you could in your answers.

First, I am going to submit to you a list of questions and ask you to give us a written reply to the Committee. I plan on submitting several questions requesting data about foreign repair stations, the

inspections, on-site inspections, locations of facilities and a number of other questions. We will get those to you and ask that you respond to them in a very short period of time.

Mr. COSTELLO. My first question today though is, you have heard the IG just state here again, he stated in his testimony and stated here that the FAA has to develop a process to determine where air carriers are sending their critical maintenance. Without this maintenance information, where the facilities are located, you cannot effectively come up with a risk-based oversight system that works.

One, what have you done to identify, what has the FAA done to identify where these foreign repair stations that are performing critical maintenance are located?

Mr. SABATINI. Thank you, Mr. Chairman. We have done a number of things, and we certainly welcome the recommendations that are made by the Office of the Inspector General.

In a moment I would like to turn to Jim Ballough, the Director of Flight Standards, to address the specifics in terms of what we have done. But if I may, Mr. Chairman, on the points that you made from my earlier testimony, my response was, as you described it, accurately, sir, I will add, that in the moment, while I believe personally that we do have FAA presence on an annual basis, I did not have the data before me to answer for the record that in fact we do.

Having followed up on that question, I can tell you that today, we have at the very least, presence once a year at repair stations. I would ask Jim to expand on that question you asked.

Mr. BALLOUGH. Mr. Chairman, in regard to the oversight of foreign repair stations and our once, at least once a year visit, there is a requirement on foreign repair stations to renew for the first time after 12 months and then 24 months thereafter. So that process is in place. We also have a requirement which we call——

Mr. COSTELLO. Let me interrupt you. I understand the processes in place. But the question is, have in fact those facilities had an inspector physically go to those 103 facilities at least one time in the first year and at least one time in a two year period?

Mr. BALLOUGH. Yes, Mr. Chairman. I can definitely state for the record that we have a metric in place that our regions review the amount of completion. I can tell you that the activities for oversight of repair stations would indicate a 99 percent, without checking the data and presenting the data in front of you, but I can tell you that our metric shows 99 percent completion of all of our required inspection items for repair stations, yes, sir.

Mr. COSTELLO. So your testimony is that those 103 facilities received at least one physical inspection by one of the 7 inspectors in a 12 month period?

Mr. BALLOUGH. Yes, Mr. Chairman, and I can provide that data.

Mr. COSTELLO. We would request that you please do that.

Let me follow up on that point. The data that you have at the FAA as far as physical and on-site inspections, how far does it go back? Is it your testimony that this has been a process that has been taking place for some time or just in the last year or so?

Mr. BALLOUGH. The process has been in place for many years. I rely, obviously, on our management and our inspectors to fulfill the

requirements that we put in front of them in policy. So I would expect that that was carried out, yes. It has been in place for years.

Mr. COSTELLO. Just so I understand here. You are relying on your managers, I understand that. Do you have records that indicate where they have filled out forms or some type of evidence that those facilities did receive a visit by an inspector?

Mr. BALLOUGH. Yes, we would have a record of that, sir.

Mr. COSTELLO. How far do those records go back?

Mr. BALLOUGH. I would say, the real time we could probably provide five years worth of that information and archive, I would say we could go back almost ten years.

Mr. COSTELLO. I would request that you go back five years and give us that data, to show us each facility, when they were visited in the five year period. You can go ahead and continue to answer the question that was posed to you by Mr. Sabatini.

Mr. BALLOUGH. Okay, so that is the response to the oversight we have of the repair station.

In terms of the recommendations the OIG made to us in their two audits, we have concurred with those recommendations and have resolved a number of them. Let me state that the regulatory structure is in place today for us to know where that work is done. The carrier is required to list in its manual system every contract or every person that they arrange to perform maintenance on their aircraft. It is true that our inspectors don't have a copy of that in our field office. However, at a request of the carrier, they can certainly review that list and find out every carrier or every contractor that that carrier uses.

Mr. COSTELLO. Would you clarify that point for me? You were saying that the process is in place for the FAA to know where these facilities are located. But the question is, do you know?

Mr. BALLOUGH. A field office could not identify where each and every case, where that maintenance is performed, no, sir. They would have to go to the carrier and ask, request to see the list and go through the list themselves.

Mr. COSTELLO. So you would rely on the carrier to tell you where these facilities are located that are doing the maintenance in foreign repair stations?

Mr. BALLOUGH. The foreign repair station information we would have, what I was referencing is all the contractors that that air carrier users. We know every foreign repair station, our data will show every foreign repair station and what carrier uses that repair station. My previous reference was to a non-certificated facility, sir.

Mr. COSTELLO. The IG talked about the need for the FAA to determine which non-certificated facilities are performing critical and scheduled maintenance. Mr. Sabatini, what is your response to that, and what have you done to implement their recommendation?

Mr. SABATINI. Well, the Flight Standards organization, under Jim's leadership, has undertaken positive steps to assure that the carriers share that information with the local field office. So we have procedures in place that are explicit, sufficiently explicit to make it clear that a field office is expected to know when they ask of an air carrier where these certificated or non-certificated entities are located and what type of work they are performing.

So to address just a little bit of what Jim was speaking of, an air carrier certainly can contract for services either with a repair station or another facility that performs certain very specific functions, such as welding or coating of certain components. We know where those are, and if we don't have an active list at the point in time, we can certainly get it from the air carrier. So an inspector can, at any time, require the air carrier to provide that information.

Mr. COSTELLO. Mr. Scovel, this will be my last question, at least on this round. I have many others. There are other Members who have questions.

Mr. Scovel, you just heard what the process is at the FAA. Is that sufficient?

Mr. SCOVEL. Thank you, Mr. Chairman. No, we don't believe it is. And if I may refer back to an earlier statement in this hearing, it was offered for the record that domestic certified repair stations and foreign certified repair stations have equivalent standards in all respects. For the record, our research shows that that is not the case, in fact, because employees at foreign-certified repair stations are not required, generally, to undergo drug and alcohol testing. Employees at U.S.-based repair stations are required to undergo that kind of testing, and we think it is a good idea. We understand that for sovereignty reasons, it may not be entirely possible to impose that requirement on repair stations in foreign countries, but nevertheless, we would be in favor of it in every case where it is possible.

To directly answer your most recent question, sir, from our July 2003 report, we recommended that FAA develop a process to effectively determine where air carriers send their maintenance. The FAA representatives here today have referred to a list that air carriers are required to provide which indicates substantial maintenance providers. My staff has reviewed those lists and we find that they are incomplete. In fact, in one instance, a carrier listed as a maintenance provider a repair station that it hadn't sent maintenance to in three years.

So in fact, what we think some carriers have done in order to satisfy FAA's requirement is simply to list all facilities and repair stations where they may have contracts and where they may intend to send business. But there is no showing that they have indeed done so.

So when we are talking about the integrity of the risk-based oversight system, and FAA's ability to target its limited resources on the actual locations where maintenance is being performed, this substantial maintenance provider list is inadequate. In addition, in the first quarter of fiscal year 2007, FAA instituted a request, if you will, that carriers provide quarterly utilization reports. The first such report was due December 31st.

We do not believe that that is adequate to address our recommendation, either. The reason for that is first, as I mentioned, this has been a request from FAA, it is not mandatory. Until it is mandatory and until FAA has in place a system to validate or verify the information, perhaps only on a sampling basis, the information that has been provided by air carriers, then the agency can't be assured that the information is accurate. We know that as

of the end of last week, two of the nine carriers who had been requested to provide this information had not done so. Those seven carriers who had provided information on the quarterly utilization reports had been inconsistent and incomplete in the information that they were providing to the agency.

For those reasons, sir, we don't consider that either the standardized substantial maintenance provider list or the quarterly utilization reports satisfies our recommendation.

Mr. COSTELLO. That is a pretty troubling report, Mr. Sabatini. Do you want to respond?

Mr. SABATINI. Let me begin by saying, Mr. Chairman, that this is an incredibly complex and dynamic industry. This safety record that has been achieved has been achieved because of the responsibility the individual certificate holders place upon themselves. We primarily have in this Country a system of voluntary compliance. I would offer to you, Mr. Chairman, that what the IG is describing would require essentially that I have FAA inspectors at the turning of every wrench. That would simply not be physically possible.

We are striving and working very hard to respond to the recommendation that has been made where we can ascertain where the maintenance is being done. It seems to me that there has been an impugning of the integrity of the individual carriers who may have listed repair stations, or facilities that they may choose to use but have chosen not to use as to indicate some sort of nefarious reason for doing so. I really question that, because that is not an unsafe practice.

And as far as standards are concerned, Mr. Chairman, all the safety standards that are required of a U.S. repair station are precisely the same as those required of a foreign repair station. Insofar as drug testing is concerned, if we could, we would do so, Mr. Chairman. Sovereignty is an issue and it goes far beyond the authority that the FAA has to impose that requirement.

Mr. COSTELLO. Let me say that I didn't take the IG's comments by any means to impugn anyone's character at any of the airlines. But let me ask just a final question, and I have other questions that I will go to on a second round.

Is it your testimony today that the FAA gives the same scrutiny to foreign repair stations as domestic repair stations?

Mr. SABATINI. I would say that the oversight and the approach that we take to ascertain, in combination, when we are talking about foreign repair stations, we not only rely on our own inspectors providing the oversight, which is equivalent to what we have here in the States. In fact, a foreign-based FAA inspector has less responsibility than a domestic-based inspector. Someone based abroad has the sole responsibility for the oversight of those repair stations. So when one draws an analogy of numbers to repair stations, one needs to keep that in mind.

Mr. COSTELLO. Is that a yes or a no?

Mr. SABATINI. I would say, yes, sir, it is affirmative that we have the same oversight of those repair stations and apply the same standard.

Mr. COSTELLO. Very good. The Chair recognizes at this time the Ranking Member, Mr. Petri.

Mr. PETRI. Thank you very much, Mr. Chairman.

It is a fascinating subject. I am sitting here listening, and I think there may be an elephant in the room that no one is talking about, and that is that all of these people who lease and own airplanes have insurance. There is a huge international insurance industry whose money is very much at risk if a plane goes down or there is a crash. They would not insure a plane if it is was poorly maintained or operated unsafely.

So there has to be a big system of private regulation that you are not even really mentioning that hopefully you are coordinating with. They are not going to rely on occasional government inspection, whether it is the American Government or Italian government or any other government. They are going to have their own systems and they may coordinate with you if it is cost-effective and they are sure it is going to produce good results.

Could you discuss how that is working? There are billions of dollars involved for the insurers if there is an airplane crash with a lot of passengers. I would think that duplicating or doing something that is secondary and not as effective as what is already going on in the industry doesn't make a whole lot of sense. Or are they just happily writing insurance policies for a billion dollars on a plane without any confidence that they are well maintained and insured? Could you comment on that, Mr. Scovel or Mr. Sabatini?

Mr. SCOVEL. Thank you, Mr. Petri. I regret I do not have the research available to answer your question directly. I believe that your point is very well taken, however, and the private insurers in this Country and elsewhere would not underwrite insurance for aircraft were they not satisfied that maintenance was being properly done.

Mr. PETRI. So before recommending that we hire more inspectors and we do all this sort of thing, shouldn't we at least sort of see what is going on in the real world, so that we don't waste a lot of taxpayers' money duplicating in a less efficient way what is already being done?

Mr. SCOVEL. That is an outstanding suggestion, sir. I would welcome the comments of the FAA representatives to see whether they have undertaken that study and have attempted to coordinate their oversight efforts with those of the insurance industry.

Mr. SABATINI. Mr. Chairman, I don't have a study that I can refer to, since we have not undertaken that type of a study. But it is a point well taken. Certainly I can tell you that in the operations world, before pilots would even be considered to be employed, they have to demonstrate that they have a level of experience required by the insurance companies that are far and above what we require for initial entry into a particular level of pilot certification. I do know, although I cannot provide you with factual information, but anecdotally and from my personal experience, certainly insurance plays a very significant role in the equation that is at play for safety when one is operating an airplane, maintaining an airplane or transferring parts across the Country via air carrier.

Mr. PETRI. I guarantee you, the reinsurers in the aviation industry or the insurers directly, will quote much higher rates or will not insure unless there are various standards that are met. And it would be cost effective for the carriers to meet those standards. That is a pretty efficient way of having a flexible but modern insur-

ance regulatory mechanism that keeps up with technology. They are competing with each other, so it is a competitive regulatory regime, which can be much more sensitive than what we can do where we review things every five years or the like.

Yes, I think you are doing something like that with your ISO or certification or procedures there, if you would care to discuss that, Mr. Sabatini.

Mr. SABATINI. Thank you, Congressman Petri.

In fact, this past August, the Aviation Safety Organization achieved what is a world-renowned international standard, ISO 9001, which basically is an international standard that distinguishes organizations that have achieved such standardization in terms of consistency and standardization in the processes that are in place. In essence, what has really taken place here is 6,500 inspectors, well, not 6,500 inspectors, but 6,500 employees in the Safety Organization are now under a single quality management system, which means we have documented processes and have metrics applied to it so that we can in fact determine how well we are performing against what it is that we say we are doing.

So we have a process in place that is recognized by an international body that has granted certification to the AVS organization which I will tell you is unprecedented in the Federal service. No other government entity has, given the size, scope, complexity and diversity of services and products, and the dispersion of our folks spread around not only the United States but also globally that have been granted that accreditation.

So it has metrics in place, it has customer feedback for the internal customer, it has customer feedback for the external customer and it is constantly being audited. I would use as an example an organization like the Flight Standards Organization, where approximately one-third of that organization on an ongoing basis is going through the audit process in order for us to sustain and maintain this accreditation.

Mr. PETRI. My time is up, but let me just say that I visit a lot of manufacturing facilities in my district. I am very familiar with the ISO standards, that are global standards in a variety of different business processing operations. They are international and companies have to get their records, every procedure in place so that parts, what they do can be audited, and it is at the highest and a uniformly high standard. This is something companies will take five or six years struggling with to achieve, because once they achieve it, everyone who deals with them knows they are a first class outfit and there a lot of overheard costs that can be eliminated over time by getting to these common standards between manufacturers. You have done this, so you should be congratulated for it.

Mr. SABATINI. Thank you.

Mr. COSTELLO. The Chair thanks the Ranking Member and recognizes the gentleman from Oregon, Mr. DeFazio.

Mr. DEFAZIO. Thank you, Mr. Chairman.

I would like to go to the point that was raised by the IG when we talked about whether or not we can track where the planes are going. We know a lot more planes are going to facilities that are not certificated in the United States for critical procedures. And, as

I understand it Mr. Sabatini, we do not inspect those facilities, is that correct?

Mr. SABATINI. Well, the answer to that question, Congressman DeFazio is, we can, we do, but we are not required, because they are not certificated under our——

Mr. DEFAZIO. That's correct, okay. That's fine. I think we have a problem here between certificated and non-certificated. Why should someone who is doing critical work be non-certificated? Certificated has to have a quality control system, establish and maintain a quality control system. Non-certificated, no requirement. Report failures, malfunctions and defects. Required at a certificated facility. Not required at a non-certificated facility. Personnel, got to have supervisors, inspectors, wow, supervisors and inspectors? No, that is not required at non-certificated. Training program? It is required at certificated. Not required at non-certificated. There has to be one FAA certified mechanic wandering around the facility somewhere. And we aren't regularly inspecting them, are we? We are not, we don't go in and regularly inspect them?

Mr. SABATINI. Well——

Mr. DEFAZIO. How many are there, non-certificated, that are doing critical work on aircraft components?

Mr. SABATINI. We can get that data, but I would have to provide it for the record.

Mr. DEFAZIO. Okay, so we don't know how many there are. That is a little disturbing. And of those who are doing critical work, can you tell me every one that does critical work has been inspected on a regular basis, like a certificated facility? Why would someone want to be at a certificated facility, if you can do the same work over here? The trend is, the airlines are pushing this stuff downstream, and they are pushing it downstream because it is cheaper. That is how ValuJet happened. It is waiting to happen again.

Yes, you have some great trend lines there. It only takes one ValuJet to kind of blow that whole thing out of the water. And I really just can't understand why we have a parallel system of non-certificated facilities doing critical work. Why don't we just say non-certificated facilities cannot do critical work? Why do we have—or why don't we just say, since the airlines you say are responsible, why don't we just do away with the whole system? Why certificate some and not certificate a whole bunch of others who are doing the same work? Why? Why? Just give me a brief answer if you could.

Mr. SABATINI. Well, uncertificated entities is really a misnomer. One can require work or ask that work be done, but that work will ultimately be done by a certificated mechanic.

Mr. DEFAZIO. Or overseen by a certificated mechanic?

Mr. SABATINI. No, actually performed by a person who has an A&P. So I would like to ask Jim to give you——

Mr. DEFAZIO. So if we aren't there watching them, how do we know that is going on?

Mr. SABATINI. We do have a percentage of that system that is known to us, and we do perform surveillance——

Mr. DEFAZIO. Known? A percentage is known? I would hope that 100 percent is known. Nick, I just don't understand it. You can't

tell me that the airlines aren't pushing stuff to—are the non-certificated facilities cheaper, generally, than the certificated facilities?

Mr. SABATINI. Well, sir——

Mr. DEFAZIO. Is the maintenance work less expensive? Yes or no.

Mr. SABATINI. Well, I don't have financial data. I will tell you this——

Mr. DEFAZIO. But the point is, why would the FAA tolerate that kind of a system? Why would you allow that to exist? If we need these things to be certified at certified repair stations, why don't we just say, well, you can be certificated if you just have an A&P mechanic do the work? I mean, why? Why do you have a parallel system?

Mr. SABATINI. We really don't have a parallel system. A certified repair station is authorized to do specific work. No one else can do that kind of work. That——

Mr. DEFAZIO. Yes, but isn't critical, critical work—work that would be in category 1, that could take a plane down—done at non-certificated facilities?

Mr. SABATINI. Well, someone introduced the choice of word of critical work. That has a very specific meaning and——

Mr. DEFAZIO. Well, you have a category 1, category 2 and those sorts of things in terms of parts. So how about we use that for maintenance? Category 1 is a critical component if it fails, it could cause emergency procedures or the plane to go down for an unapproved part. Let's apply that to air stations. Do we allow work that would be the same as a category 1 unapproved part be done at non-certificated facilities? Yes or no?

Mr. SABATINI. We would not permit someone who is not qualified——

Mr. DEFAZIO. No, but do we allow it at the non-certificated facilities? Yes or no?

Mr. SABATINI. The answer is that we would not allow anyone who was not properly authorized and certified to perform a work on a particular component. Now, someone can send a blade to be coated to a facility that doesn't need to have FAA certification to do plasma coating.

Mr. DEFAZIO. I know, but you can't trivialize this concern. I think as just sort of, again—my time has expired. But we, a non-certificated facility with an A&P mechanic could do critical component work on an airplane that could take a plane down if it failed, and that is true, is that correct?

Mr. SABATINI. I disagree, Mr. DeFazio.

Mr. DEFAZIO. Oh, they couldn't do the work? It wouldn't be allowed? Is it barred?

Mr. SABATINI. I would disagree with how you characterized that question, sir.

Mr. DEFAZIO. No, I am not characterizing. I am just asking, over here at a certificated facility, you can do this work. It goes to a critical component, you have all these other requirements in place. But that same plane could be taking to a non-certificated facility, yes, correct? And an A&P mechanic, without any of these other strictures or controls in place that are required at certificated facilities, could do that same work if they were trained in that? Yes, that's true, isn't that correct?

Mr. SABATINI. I would answer, sir, that an A&P mechanic who is on call for service to be provided to an air carrier would receive the instruction and the training that is required to do that very specific work. And an A&P mechanic is qualified to do that work? Although that person may not work in a facility that we would call a repair station.

Mr. DEFAZIO. I know, but the point is, you have to look at it one or two ways. You say it is ultimately the carrier or owner's responsibility for the aircraft. If we are just having a faith-based system here that they are going to do what is necessary and they are going to oversee it, then why bother to have certificated repair stations at all? Why maintain that structure if the same work can go to a non-certificated—that is the point I am trying to get at here, and I just don't understand that. Because if we need these things to make things work out right at a certificated station, doing the same work, why don't we need all of those same things at a non-certificated station? I just don't think that that is right. There is a lot to ask, I will have another round on foreign stations.

Thank you, Mr. Chairman.

Mr. COSTELLO. Thank you.

The Chair recognizes the gentleman from Wisconsin, Mr. Kagen.

Mr. KAGEN. Thank you, Mr. Chairman. I apologize from the beginning, my voice has been transported elsewhere.

Mr. Sabatini, thank you for being here. You have a very challenging and difficult job, and I certainly wouldn't want to be sitting in your chair, at least today. It is certainly very difficult, everyone here in the room would agree that it is hard and perhaps impossible to inspect places when you don't know where they are. So it would be a great idea to find out where all these facilities are, to at least identify what needs to be inspected.

Others here, our job as I see it as Congresspeople, our duty really is to help guarantee the safety of the traveling public and the people that work in the transportation industry. It really isn't to guarantee the profits of insurance companies or the airlines themselves. So having heard the testimony of our Inspector General, will you recommend that the quarterly utilization reports become mandatory? That's a yes or no.

Mr. SABATINI. At this point in time, it is not required by regulation to report where these uncertificated entities may be located. It is being provided to us on a voluntary basis.

Mr. KAGEN. So will you recommend that it will become mandatory so we can move it away from a voluntary participation?

Mr. SABATINI. We will certainly consider that.

Mr. KAGEN. So that is not yes.

Mr. SABATINI. Well, rulemaking is a significant undertaking and we would like to assess the risk-based foundation upon which we would make such a recommendation, whether it would be warranted or not.

Mr. KAGEN. Thank you. In your mind, is there any difference between a licensed and non-licensed inspector or a licensed or non-licensed mechanic?

Mr. SABATINI. That is a difficult question to answer the way it was asked.

Mr. KAGEN. Well, I can tell you, being a physician, there is a real difference between a licensed specialist and non-licensed specialist.

Mr. SABATINI. Of course, a repair station is certificated and has been granted authorization because they have demonstrated they have the competency and the qualifications. An individual holding a pilot's license, a doctor's license, can certain operate as an individual or can certainly operate within the context of a repair station. Each are properly certified to do the work that they would be doing.

Mr. KAGEN. So when you go to the doctor and have a procedure or a surgery performed, you would like someone who is very well skilled and licensed in that process, wouldn't you?

Mr. SABATINI. I would choose a general practitioner for general health and a specialist if I needed a specialist.

Mr. KAGEN. Okay. Is it true that the FAA really has no process to determine the number of inspections that are necessary and where these people should be placed, is that true?

Mr. SABATINI. Well, sir, I am assuming you might be referring to the recent study that was provided to us by the National Research Council of the National Academies. They have pointed out how we can improve in our staffing models. And I would agree, it is a science, and we need to improve on the methodology that we have today.

Mr. KAGEN. All right, thank you. I yield back my time.

Mr. COSTELLO. I thank the gentleman.

The Chair now recognizes the gentleman from Missouri, Mr. Carnahan.

Mr. CARNAHAN. Thank you, Mr. Chairman.

And to the panel, while I think we are all pleased to see the trend lines of safety and accidents going down, I don't think anyone would be satisfied until those numbers get down or approach zero, that that is a continuing effort. I guess what strikes me is that there appears to be giant loopholes in the system that oversees our maintenance in terms of where it is done, how it is done, different standards in how things receive oversight.

Ronald Reagan had a great phrase back during his presidency, trust but verify. We can't have a system that we just think is getting safer, and if we can identify areas that need improvement, we need to do that. I guess I would like to ask to Mr. Sabatini, what does the FAA intend to do to consider limiting the work that can be done at non-certificated facilities and how that will be, what kind of oversight and inspections that process would have?

Mr. SABATINI. We have taken the recommendations along those lines that the Inspector General has made. We have put in place some procedures to begin to address that. I would like to turn to Mr. Ballough to give the specifics on what is what is being done in the Flight Standards Service.

Mr. BALLOUGH. Mr. Carnahan, in the IG's report on repair station oversight, it made nine recommendations. Of those nine, we concur, and we have closed all but two. Those two we are still working with the IG to come up with a solution we both would agree to.

Mr. CARNAHAN. What are those two? I am curious.

Mr. BALLOUGH. One dealt with financial data and who should be collecting financial data. The second one is to develop a process to identify repair stations and carriers that perform aircraft maintenance. That is the recommendation we feel we have agreement on our approach, but we continue to work with the IG to close that one out as well.

And the other seven are closed out with numerous things, or accomplishments that we have made regarding policy correction, policy enhancement, with better ways to analyze data with our safety performance and analysis system. That was one of the criticisms in that report, was that repair station data that was recorded by inspectors are overseas repair stations and air carrier data that is recorded by inspectors that oversee the air carriers, that both inspector work forces couldn't see the other data. The data was not merged, so to speak.

We have enhanced that to where now, we can take a repair station such as Haeco in Hong Kong and identify every carrier that uses that facility, everybody that has been there. So that has been a huge enhancement for us in the past.

Mr. CARNAHAN. Hold that thought, because I want to get a chance for the IG to weigh in on this as well. And I guess I would like you to comment on those outstanding items that were mentioned and any other items that were not in terms of limiting that scope of work at non-certified facilities.

Mr. SCOVEL. Thank you, Mr. Carnahan.

Our major concern was the second outstanding recommendation. As I mentioned in an earlier response to a question, we do not consider FAA's efforts to address our concerns adequate. I refer to the quarterly utilization reports and to the vendor or contractor lists which carriers are required to provide. We don't consider that answers our concerns in order to identify, first, where maintenance is going and second, which non-certificated facilities are performing critical maintenance.

A point was made by Mr. DeFazio and Mr. Kagen, and I know it is a concern of yours, sir, with regard to non-certificated facilities. Before our December 2005 report, we surveyed 19 carriers. All 19, as I mentioned in my oral statement, had used non-certificated facilities to some extent, 1,400 of them, in fact, 1,400 different non-certificated facilities. One hundred four of those were overseas. Of the 1,400 facilities, we found that 21 had performed critical maintenance. Of the overseas facilities, non-certificated, FAA inspectors had never visited them.

Mr. CARNAHAN. Is there any safety data that would distinguish those different types of facilities?

Mr. SCOVEL. I would need to check with my staff, sir. I can tell you generally that it is a concern of ours that as we go along the maintenance continuum, if you will, looking first from in-house maintenance performed by carriers themselves and moving along the axis to repair stations, certificated repair stations, and further out when we talk about non-certificated repair facilities, the level of oversight becomes more diffuse. As I mentioned in my statement, it is not where the maintenance is performed that is of concern for us, it is the oversight and the degree that is appropriate in order to ensure the safety of the traveling public.

Mr. CARNAHAN. Thank you. I see my time has run out. But I would request, Mr. Chairman, that if your staff could gather any of that safety data that makes a distinction along that maintenance continuum, I think it would be helpful to this Committee. Thank you.

Mr. COSTELLO. I thank the gentleman from Missouri. We will announce to the Members that there is a vote on the Floor right now. We are down to about five minutes, so we will recess, go over. My understanding is we should expect one vote only, and come back immediately and continue our questions for the first panel.

The Committee stands in recess.

[Recess.]

Mr. COSTELLO. The Subcommittee will come to order.

We would ask the witnesses to be seated and the Chair recognizes the gentleman from Oregon, Mr. DeFazio on a second round of questions. I have some questions but I am going to hold them until Mr. DeFazio is finished with him.

Mr. DEFAZIO. Thank you, Mr. Chairman. I did want to get to the overseas issue.

But I just want to return, Nick, we are having a failure to communicate, as they would say in Cool Hand Luke. Let me read from the IG's report and maybe this will make my point. Page 14, it is talking about non-certificated facilities. In our view, it goes on to say, non-certificated facilities are not required to employ designated supervisors, inspectors, while their maintenance is being performed. Relying solely on the expertise of an individual mechanic to ensure the repairs are completed properly is an inadequate control mechanism. In our view, this is the reason FAA requires added layers of oversight, such as designated supervisors, inspectors and certificated facilities.

That is one point I was trying to make. Perhaps I didn't articulate it well.

Then the second point is critical work is being done in these non-certificated facilities, and they go on to use an example where people died. The importance of this issue became evidence in the aftermath of the January 2003 Air Midwest crash in Charlotte, North Carolina. Independent contract mechanics, certificated by FAA and working for a non-certificated company, completed maintenance on the aircraft the day before the accident. Mechanics incorrectly adjusted a flight control system that was ultimately determined to be a contributing cause of the crash. This work was approved by an FAA-certified mechanic employed by the non-certified company.

We didn't have the other levels of fail-safe that we have at certificated facilities. That is the point I am trying to make. So the question is, why do we allow, I mean, given that crash, and the potential problems, why wouldn't we just say to the airlines, we certificate facilities for a reason, we believe it gives us a higher level of assurance that the work is supervised and reviewed, there is less possibility of killing people as we did at this case. And we are going to tell you that you can't take anything that involves critical components to a non-certificated facility.

Now, why can't we do that? Congress could mandate that. Why doesn't the FAA do that as the safety watchdog?

Mr. SABATINI. We in fact have very good controls over that.

Mr. DEFAZIO. Well, what happened in this case? They died. People died, and this was an—this is making my point, Nick. Stop defending the indefensible at the agency. Just give me an honest answer. Why should we have this secondary system that can do—I mean, you want to have them out there and they want to take care of the seats or they want to do this or they want to wax the plane or paint it, I don't care. But why allow, people died in this case. I think it is arguable that if that had been done at a certificated facility that had supervisors and more regular work procedures that they might not have died. Why do we allow that to exist?

The only reason the aircraft operators are going there is because it is cheaper. And you won't admit that, either. It is cheaper to go to a non-certificated facility. They don't have the overhead. They don't have that pesky supervisor. They don't have all these other requirements.

Can't you just tell me that the system would be safer if we said, if the work is on a critical component, something that can cause either emergency procedures to be required or the aircraft to fail in flight, it must be performed at certificated facilities? Wouldn't that give us a safer system?

Mr. SABATINI. I am all for putting in place any procedures that will continue to improve on the system safety. But I must tell you, Mr. DeFazio, that we have absolute control over the air carrier, and it is the air carrier's responsibility, or the repair station's responsibility, who is contracting out for that service with an entity that may not hold an FAA certificate. That product or component that has been repaired by that entity or that person must go back——

Mr. DEFAZIO. I understand. But what is the recourse of the people who have died? Do we put anybody in jail because of this? Did we give someone the death penalty because of this? No. The point is, this is an industry that is desperately trying to survive or make a profit. They are going to seek out the cheapest maintenance they can find and they are going to hope, it is their responsibility, they are going to hope it holds together and works, or at least until that chief executive officer gets his bonus and moves on somewhere else.

Mr. Scovel, since this is in your report, can you answer that question I asked? Would we have a system that had potentially a higher level of safety if we required critical work, as I have defined it, to be done at certified facilities?

Mr. SCOVEL. Thank you, Mr. DeFazio. Before the recess, when you posed the question concerning non-certificated facilities and repairs and so forth, of course, our example from our testimony came to mind, the Air Midwest tragedy from several years ago.

Mr. DEFAZIO. Not so many, only four.

Mr. SCOVEL. Too recent, indeed. The question of what type of work non-certificated facilities should perform and whether it should be limited by law or regulation I believe is a policy question for you and for the Administration. I view the role of the IG as to pose that question and to pose it repeatedly. I don't view it as my role, however, to take a stand on that particular policy question.

To the extent that we can, if we can provide data, safety-related data to show that repairs performed by certificated facilities, especially with regard to critical maintenance, are indeed done more

frequently, correctly, then we can bring that kind of information to the debate.

Mr. DEFAZIO. Okay, thank you. My time has again expired. The Chairman has been generous. I assume that the Chairman will get more into the foreign facilities, or the full Committee Chairman I think will visit that issue.

Mr. COSTELLO. I thank the gentleman, and the Chair now recognizes the distinguished Chairman of the Full Committee, Chairman Oberstar.

Mr. OBERSTAR. Thank you, Mr. Chairman, for the very substantial work you put into crafting this hearing, gathering the data, setting the stage. Mr. DeFazio, for your ever-persistent advocacy of ever higher standards of maintenance and maintenance oversight.

I think the context in which this hearing takes place is that of airline losses of over $35 billion over the last years since September 11th, elimination of 27,000 airline maintenance jobs at the mainline carriers since September 11th, closing of maintenance bases at the principal commercial airliners, outsourcing of maintenance. And what is particularly troubling is outsourcing of heavy maintenance, which now is reaching over 40 percent, 42 plus percent of the $9 billion-plus that airlines are spending. That is a considerable amount of money. In the beginning of the 1990s, there was about $5 billion being spent by the airlines on maintenance.

But we are seeing in the IG's report up to 60-plus percent of heavy maintenance outsourced by the airlines, by our commercial carriers. That was unthinkable in the 1980s. In the early and mid-1980s, airlines were the source of maintenance business coming to the United States from foreign carriers, being performed by the U.S. because of the high quality of maintenance performed at U.S. shops. United, American, Northwest, Delta, all were looking to foreign airliners as a source of business.

Only American Airlines, among the major carriers, has kept its maintenance in-house, working with the Transportation Workers Union, they have set a goal of saving half a billion dollars in costs of operation. But they have done it in-house. Why the others have chosen to outsource is a continuing puzzlement to me. But it is clear that if you look at the contractual arrangements by other carriers, their costs of outsourced maintenance compared to doing it in-house is half. The answer to the question Mr. DeFazio asked of Mr. Sabatini is that indeed, cost is a huge factor. It is the reason they are outsourcing. The breakdown of the International Association of Machinists Union internally resulted in outsourcing by carries to other facilities.

So in looking at the volume of outsourcing, the amount, we have 4,200-plus MROs in the domestic U.S. and nearly 700 foreign repair stations. That is up from 440 in about 1990. And only 734 domestic inspectors. Is that right, Mr. Sabatini?

Mr. SABATINI. Yes, sir.

Mr. OBERSTAR. After the investigations that we conducted in the Subcommittee investigations and oversight on significant aviation failures due to maintenance in the 1980s, the then-Chair of the authorizing committee, I was Chair of the Investigations Subcommittee, Mr. Mineta and I took to the Floor an appropriations

bill, an increase of over $10 million a year to hire up to 1,000 inspectors. We succeeded. The inspector workforce was increased.

But then, in your own testimony, that number is down, so you have gone to a risk-based and even that was recommended by the IG's office, not as an option but in light of the circumstances of a smaller workforce, more outsourcing of maintenance. In 2003, the IG said, well, you could do this job by shifting to what internally is known as ATOS, or a risk-based system.

I like your statement, Mr. Sabatini, that you have achieved the ISO 9001 certification. But I am troubled that you say, we adhere to the same safety standards as the businesses we regulate. That is not good enough. FAA is the standard. Those businesses you regulate are not. You are the standard. You make them come up to FAA.

The opening paragraph of the 1958 organic act creating the FAA says, "Safety shall be maintained at the highest possible level," not the level airlines can afford, not what they want to pay, not what they can outsource to pay, but the highest possible level. FAA is that guardian. You say consistency is the goal, inconsistency is troubling. But the inconsistency is in the IG's report, as Mr. DeFazio has insisted on, where you have different standard for differing facilities. In the non-certificated and certificated—are you going to reconcile those two?

Mr. SABATINI. Absolutely, Mr. Chairman. There is in essence no different on safety standards between a foreign repair station or a domestic repair station. The only difference that was pointed out this morning was that we require drug and alcohol testing in our Nation and that is not required in other sovereign states. If we could impose that, we would.

Mr. OBERSTAR. In the foreign repair station arena, it is, the mode of operation of FAA is to accept a country's own standard, if they adhere to the ICAO standards, right? And accept the host country's certification of a facility? Is that correct?

Mr. SABATINI. Not correct, sir. What we do in foreign, in issuing a certificate to a foreign repair station, that applicant at that point in time must demonstrate to the FAA that they in fact meet the very same regulatory requirement, FAR Part 145, to be certificated as a repair station abroad. So the certification rules are precisely the same, whether it is domestic or foreign-based.

Mr. OBERSTAR. Now, does that mean that in that repair station that not only the facility must be certificated and meet U.S. FAA standards and ICAO standards, and that all of the maintenance personnel must be A&P equivalent certificated maintenance providers?

Mr. SABATINI. Take a country like France, certainly a sophisticated and advanced society in terms of aviation safety, built some very fine airplanes and again, very sophisticated. That particular country does not require that they have what would be in our parlance an A&P certificate. But rather, it is an education level in the discipline of aviation maintenance.

So in that regard, they would not require an A&P of that person there.

Mr. OBERSTAR. How about El Salvador?

Mr. SABATINI. Well, you know, Mr. Oberstar, Mr. Chairman, several weeks ago you brought that to my attention. Following that conversation, I asked Jim Ballough to go down to El Salvador and validate what we know from data to be data that suggests that it is performing in accordance with expected standards. I asked Jim if he would go down there and make a personal visit, and with your permission, sir, I would like to have Jim tell you about that visit.

Mr. OBERSTAR. Proceed.

Mr. BALLOUGH. Thank you, Mr. Chairman. As Nick mentioned, I visited the TACA facility a few weeks ago and I would be glad to share what my views and thoughts were on that issue. Before I begin that, I would just like to make the point that regardless of what type of outsource or contract maintenance we are talking about, there are definite responsibilities for three entities. And I will demonstrate that when I talk about AEROMAN. Those three entities are obviously, the air carrier that is using that facility, they have some responsibilities. They can't just wash their hands of the activity because it is going to a repair station. Obviously a major role for the repair station as well, in making sure that they have the properly trained personnel, the equipment, and all the manuals and all the things that are required by our certification.

And thirdly, it is our FAA oversight. We play a major role in making sure——

Mr. OBERSTAR. That is all accepted. Tell me about what you found in El Salvador.

Mr. BALLOUGH. Very good. In that facility, you mentioned the certificated mechanics. Every technician, every mechanic that works on an airplane in that facility, is certified under the El Salvadoran process. That process is not a mirror image of ours, but it is closely aligned with the requirements that we have——

Mr. OBERSTAR. Do they have an A&P mechanic certification system?

Mr. BALLOUGH. Yes, sir. Yes, they have——

Mr. OBERSTAR. On what system is it patterned, since El Salvador—I made trips to El Salvador in the early 1980s, in the days of human rights abuses. I am quite familiar with this country. So tell me, where are they getting this?

Mr. BALLOUGH. It is based on our system. Not necessarily a mirror image.

But they go a step further as well. They have 25 percent of their technicians, their mechanics, and they would do more if they could obtain more visas, but they have 25 percent of their mechanics they have sent to the U.S. who have tested and have received A&P certificates. So out of a workforce, mechanic workforce of 879, they have 167 that are in fact certificated A&P mechanics. They would like to have more certificated A&P mechanics. So we are working with them to see what it would take to provide them the opportunity to certificate more of those folks.

Also, they are an ISO 9001 certified organization as well. They achieved that certification in 2003. They are a certified Airbus MRO network maintenance organization. If you think of the Airbus, the global nature of aviation today, Airbus recognizes just a handful of facilities that are qualified to repair their aircraft. And they recognize them as an Airbus MRO network operation.

Mr. OBERSTAR. FAA performs oversight of that facility then, from the Miami FSDO, you call it something else?

Mr. BALLOUGH. Yes, sir, the Miami IFO. We in fact, my inspectors are in that facility once a quarter, they visit that facility.

Mr. OBERSTAR. Once every three months?

Mr. BALLOUGH. Once every three months, they are there, yes, sir.

Mr. OBERSTAR. But those inspectors from the Miami, you call it IFO now——

Mr. BALLOUGH. International Field Office, Mr. Chairman.

Mr. OBERSTAR. I still call them FSDO. For 53 facilities in Central and South America?

Mr. BALLOUGH. Yes. We have, the number of personnel we have in the Miami office are 16 inspectors.

Mr. OBERSTAR. They are on the road a lot going to one of these every quarter.

Mr. BALLOUGH. Yes, they are. In fact, fortuitous as my visit was, the inspectors were there when I was on scene as well. They do spend an awful lot of time on the road, yes, sir.

Mr. OBERSTAR. Well, coming back to your personal observations and what you reported about, you are saying that the Salvadoran maintenance personnel, at least one-fourth of them have been trained in the U.S., FAA A&P standards?

Mr. BALLOUGH. Yes, sir.

Mr. OBERSTAR. And they have an A&P certified supervisor in the shop who is overseeing the work, signing off on the work?

Mr. BALLOUGH. Yes, sir, Mr. Chairman. Also, there is another element here are as well. There are two major air carriers that use that facility today. And both of those air carriers have been seven and eight personnel on scene, so that every moment that airplane is in a check, they have their own airline personnel on staff, overseeing the work as well.

Mr. OBERSTAR. Have you completed a written report on this for Mr. Sabatini?

Mr. BALLOUGH. No, I have not, sir.

Mr. OBERSTAR. Are you going to?

Mr. BALLOUGH. I will, yes, Mr. Chairman.

Mr. OBERSTAR. When you do that, submit that to the Committee. I think it is very important for us to have the facts. That would be very useful and we would like to evaluate it.

There are facilities, though, MROs in the U.S. where there, where not all the mechanics are A&P certificated, where the FAA considers it sufficient for a supervisor to sign off. Is that not the case, Mr. Sabatini?

Mr. SABATINI. There are circumstances where work can be performed by someone who may not have an A&P certificate, in a repair station context, who is trained and has been issued a repairman's certificate. But sign-offs are done under the supervision of a supervisor who would have authorization, such as an A&P and also authorized by the procedures manual to do that particular kind of oversight and sing-offs.

Mr. OBERSTAR. I am concerned about that type of arrangement. I think FAA needs to raise the bar for those facilities, especially when you have so few inspectors. I will consult with Mr. Costello, the Chairman of our Subcommittee, and with the Ranking Mem-

ber, about moving in the appropriation process to increase funding for the inspector workforce. I think you are way understaffed.

Mr. Scovel, in the history of FAA oversight maintenance, record-keeping is critical. When an airline has either gone out of operation or has outsourced its maintenance, all the maintenance records, boxes and boxes of them, were transferred. In this day of electronics, however, I suppose those are CDs that are transferred.

And now you have major airlines contracting maintenance out to the lowest cost provider. And then they re-bid the contract a year or so or two years later, sometimes it is three years. And the records are supposed to be transferred. Are you watching, is FAA watching over the transfer of records to be sure that they go from one facility to the next, and that trend lines are being followed and that down to the last detail, the surveillance is in place?

Mr. SCOVEL. Thank you, Mr. Oberstar. I can speak from our experience in conducting surveys at a number of carriers. We have found that the carrier's maintenance records generally are good. And we are able to determine how their maintenance has been contracted out back over a number of years. It is based on that research that we have been able to determine when, for instance, non-certificated facilities have been used on certain repair operations versus repair stations, either here or overseas. And back to the days when some carriers were using in-house maintenance more extensively.

Mr. OBERSTAR. So you are confident that, and Mr. Sabatini, are you confident that record-keeping is being transferred and sustained by subsequent maintenance providers as aircraft, airlines increasingly bid out their maintenance jobs, including heavy maintenance?

Mr. SABATINI. Mr. Chairman, I am convinced that there are complete records on aircraft, no matter where that aircraft maintenance is performed or who owns that airplane. But I would ask Jim to give you more specifics on how that system works.

Mr. BALLOUGH. In the case of the AEROMAN visit, Mr. Chairman, there are records that are transferred both electronically in the moment as well as every hard copy record goes with that aircraft as it leave the check. More globally, when our certificate management office inspectors review the maintenance records, they will look at a work package, regardless of whether it is done in the States, done in-house or done overseas. So that is a responsibility that our certificate management office inspectors have as well, looking at those records. And they in fact make visits to those facilities as well.

Mr. OBERSTAR. I think that is a very critical aspect, and I am not totally comfortable with ATOS, or risk management systems, that will increasingly rely upon record-keeping rather than hands-on. It is emblazoned in my mind, testimony that came in a hearing in the 1980s, from, well, I am quite sure it was the Miami FSDO, who said, we are so overworked, we are only looking at paperwork, we are not looking physically at engine work and airframe work. We are not on the shop floors as we need to be. And when the FAA oversight becomes distanced from the shop floor and is relying only on records, then you lose contact with the reality that this is an aircraft, not a piece of paper, not a document popping up on a com-

puter screen. And I am much more comfortable with the hands-on than I am with the fingers on the keyboard and pop-up screens.

Mr. SABATINI. Mr. Chairman, to put it perspective, we initiated risk-based before it was suggested that we continue in that direction. ATOS was introduced in 1998, which is system safety. It was an evaluation of what we have been doing for many years. And what we have today is a combination of touching metal and kicking tires, because that is how inspectors collect on-site information.

But what is also very important to understand, that in a global, complex system like ours, where it is based on a system of voluntary compliance, where air carriers, repair stations, any entity that is certificated by the FAA is required by regulation to provide us with records which they must maintain. And it is a combination of looking at records, being on the shop floor and also rolling it up into what we call today system safety.

And what we have required of the airlines is to redesign their system such that there are those attributes of system safety that come to play each and every moment, so that the system design produces the service or product in a consistent way. Unlike what we did in the past, when we see data, a combination of data collected by ourselves and combination of data provided because of the records that are required to be provided to us, we identify areas of risk and that is where we focus our attention.

So we are smarter about where we bring our people. So it is a combination of in fact, touching metal and kicking tires, as well as the sophistication of system safety that brings auditing to bear.

Mr. OBERSTAR. Thank you.

Mr. Chairman, you have been generous with the time here, and I appreciate the opportunity to spend some time on this. It will take a good deal more inquiry.

Just a parting thought, and that is, reconcile the differences in FAA certificated repair stations and non-certificated, bring those together so there is no gap, as you said earlier. Consistency is the key to success in aviation safety oversight. Increase, we will work to increase the inspector workforce, to ensure that they have adequate numbers of inspectors and that the oversight work is being performed in a consistent manner.

Thank you very much. Thank you, Mr. Chairman.

Mr. COSTELLO. Thank you, Chairman Oberstar.

As Chairman Oberstar indicated, it will take a number of hearings in the future to address some of these issues. As I said from the outset, this is the first in what we expect to have other safety hearings concerning the outsourcing of maintenance as well as other issues.

At this time, the Chair recognizes the gentlelady from Oklahoma.

Ms. FALLIN. Thank you, Mr. Chair.

In Oklahoma, we have a maintenance repair organization for American Airlines. I had the opportunity to visit with them yesterday about their inspections and the FAA. They were staying that usually they have around 37 FAA inspectors who come to that facility and inspect it at different times. And they were also visiting with me about the outsourcing and maintenance to foreign countries.

My question is, and I may have missed some of the testimony already and I apologize, but how to we assure, between the FAA inspectors in America versus the FAA inspectors who are going out of the country to inspect the foreign outsourcing of maintenance, how do we assure the same level of inspection?

Mr. SABATINI. The regulation upon which a repair station is certified is the very same regulation that is used here in the States and abroad. The inspectors receive the very same training and the inspectors abroad are dedicated to solely oversight of those repair stations that they are responsible for in that geographic area. Here in the States, we do not have inspectors who have the sole responsibility for the oversight of a repair station. They may have a combination of other responsibilities as well.

So in essence, the oversight is using the same standard, the same training, the same policies across the board. There are no differences. And as you said, you missed an earlier point that was made. There is a distinction between here and abroad. We require drug and alcohol testing here. We cannot impose that upon another sovereign state. And if we could, we would. But we don't have the statutory authority to do that.

Ms. FALLIN. Mr. Chairman, if I could do a follow-up. Is the ratio between the inspectors here and the inspectors in foreign countries, are they the same as far as numbers of inspectors?

Mr. SABATINI. We do have some data, and I will ask Jim to share that with you.

Mr. BALLOUGH. Ms. Fallin, what I would like to mention is, the domestic repair station world, and I will make a distinction between repair station and air carrier oversight, since you mentioned American Airlines, in a moment.

Domestically, we have 801 inspectors that oversee 4,231 repair stations. Overseas, we have 697 repair stations, and they are overseen by 67 inspectors. So the ratio, and it is much more complicated than just dividing out and coming up with a ratio. Because the work assignments are very different. The folks in the States that have repair station oversight responsibility are inspectors, also have responsibility for FAR Part 135 operators, maybe flight schools, so a host of other activities. The inspectors that are assigned strictly to foreign repair stations, that is their primary work function. They have additional duties that may require oversight of a designated airway and its representative or another inspection authorization mechanic, but not near the complexity or the amount of certificates for the domestic repair station oversight personnel.

But the issue that you raised regarding American Airlines and the 37 folks, those folks are from what we term a certificate management office or CMO. So there is a large number of folks that are inspectors dedicated for oversight of all of American Airlines. So in this case, where they use Tulsa, the program managers that have responsibility for certain fleet types visit Tulsa. In the case of an airline that outsources their heavy checks, outside the U.S., those same program managers also have a responsibility for oversight even though those checks go out of the Country.

So no matter where those checks are done, and I will admit, not near to the level that you would see in Tulsa with it being such close proximity, but nonetheless, the oversight does get done by the

certificated management office as well when that work is outsourced, that heavy check.

Ms. FALLIN. Mr. Chairman, if I could have one more. That brings up another interesting point, if the levels are a little different, have you ever compared or audited the safety records of the aircraft, the incidents that they might have, compared to the foreign operations and maintenance versus the U.S. operations and maintenance?

Mr. BALLOUGH. In the case of, I will use one example, one experience that I witnessed. That is the facility in El Salvador. When the checks leave that facility, that repair station, as well as the airline, tracks that aircraft for 30 days. And they track that aircraft to see what type of discrepancies are written, what kinds of malfunctions the aircraft is having, to assure themselves that the quality of the work coming out of that repair station is as good as it can get. As a result, they do a customer survey of every customer that uses that repair station and consistently, they score in the 9.4 out of 10 in terms of the quality of product being released by that repair station. So the repair station also takes an active role in looking at the quality of the maintenance that is done once it leaves that facility.

Ms. FALLIN. One more question, Mr. Chairman.

The cost of the inspectors going to the foreign MROs, what is the cost to the United States as far as the FAA and having those inspectors travel out of the Country?

Mr. SABATINI. There are some figures that we do have, and just generally speaking, a domestically based inspector, fully loaded figure, would be approximately $100,000 a year, on average. A foreign-based inspector is slightly over $200,000 per year.

Ms. FALLIN. So there are some that just live in the foreign country that inspect?

Mr. SABATINI. I'm sorry?

Ms. FALLIN. There are some that just live in the foreign country that inspect?

Mr. SABATINI. We have inspectors who live abroad. We have inspectors who are assigned to those geographic areas, in Frankfort, London, Singapore and well, those locations.

Ms. FALLIN. Thank you.

Mr. COSTELLO. The Chair thanks the gentlelady and recognizes now the gentlelady from Hawaii.

Ms. HIRONO. Thank you, Mr. Chairman.

Since oversight is critical to the system and we clearly don't have enough inspectors, we need to deploy our resources as effectively as possible. The IG in his testimony noted that FAA needs to develop an effective staffing model. I would like to know whether you are in the process of developing such a staffing model as described the IG, and two, if you are doing that, whether you are involving affected persons such as the current aviation inspectors, and three, what would be your time frame for completing this model?

Mr. SABATINI. We have followed up on the recommendation, and we are following the recommendations made by the National Research Council, which is a group within the National Academies of Sciences. I will turn it over to Jim, who was directly responsible in leading this effort for the contracting of the services to do exactly what you have asked.

Mr. BALLOUGH. We have recently entered into a contract with an organization that will begin to work, they have done some preliminary work for us already. So that will be in full swing here shortly.

We had a few issues early on with the continuing resolution and we now have the contract in place and the work has begun. Ma'am, right now, I do not have an estimated time of completion of that. I would expect to have that and could supply that to the Committee at a later date, when I get that information.

Ms. HIRONO. What about my question relating to involving the people who would be impacted by such a staffing model, i.e., the aviation, the inspectors, safety inspectors?

Mr. BALLOUGH. I think that they will have to be involved. Obviously for a contractor to be able to develop for us a staffing model, they have to certainly understand our complexity and the contractor that is doing the work for us, has involved our work for us in some of the activities that they have been doing recently. So I fully expect that the stakeholders, all our inspectors will be involved.

Ms. HIRONO. I am a little bit confused as to why you would enter into a contract that does not have a completion time frame. So what is your time frame?

Mr. BALLOUGH. At this point in time, we have modified the statement of work, and they have not come back to us at this point in time yet with what a time line or what the action plan is to complete the activity. This is all recent developments, in the last month, once we receive our budget.

Ms. HIRONO. Mr. Chairman, since this model is very critical to the oversight capability of FAA, I would like to ask the Chair for you to follow up with FAA and give us that time frame for this model to be completed.

Mr. COSTELLO. The Chair will make that request and announce, I mentioned earlier that we will have written questions to submit to the FAA. We will put a time frame as to when we want the response back. I have several questions, five or six, that I am going to put in writing and we certainly will add your request to that as well.

The Chair would like to thank all three of our witnesses for being here today and presenting their testimony. We look forward to additional responses from the FAA. At this time, the first panel is dismissed and we would ask the second panel to come forward. Thank you.

I will begin introductions as the witnesses are moving forward, in the interest of time. The second panel will consist of Mr. Tom Brantley, the President of the Professional Airways Systems Specialists, AFL-CIO; Mr. James Little, International President of the Transport Workers Union; Mr. John Goglia, the Adjunct Professor of Aviation Science, Parks College of Engineering, Aviation and Technology, St. Louis University; Mr. Basil Barimo, the Vice President of Safety and Operations, Air Transportation Association of America; Mr. Marshall Filler, Managing Director and General Counsel of the Aeronautical Repair Station Association; Mr. David Campbell, the Vice President for Base Maintenance at Alliance Fort Worth and Kansas City, with American Airlines; and Mr. Ray

Valeika, the Independent Aviation Advisor, Senior Vice President of Technical Operations with Delta Air Lines, Retired.

Let me say to our witnesses, first, we welcome you and we thank you for being here today. You have submitted your written testimony and it will be entered into the record in full. Let me ask you, in the interest of time and so that we can get to questions, we have a number of questions, and hopefully in your remarks you will address some of the issues that were brought up with the first panel.

But I would ask you to summarize your written statement in five minutes or less. The Chair will recognize Mr. Brantley for five minutes.

TESTIMONY OF TOM BRANTLEY, PRESIDENT, PROFESSIONAL AIRWAYS SYSTEMS SPECIALISTS, AFL-CIO; JAMES C. LITTLE, INTERNATIONAL PRESIDENT, TRANSPORT WORKERS UNION; RAYMOND VALEIKA, INDEPENDENT AVIATION ADVISOR; JOHN J. GOGLIA, DIRECTOR, CENTER OF INTEGRATED EMERGENCY MANAGEMENT, PARKS COLLEGE OF ENGINEERING, AVIATION AND TECHNOLOGY; BASIL J. BARIMO, VICE PRESIDENT, OPERATIONS AND SAFETY, AIR TRANSPORT ASSOCIATION OF AMERICA, INC.; MARSHALL S. FILLER, MANAGING DIRECTOR AND GENERAL COUNSEL, AERONAUTICAL REPAIR STATION ASSOCIATION; DAVID CAMPBELL, VICE PRESIDENT FOR BASE MAINTENANCE AT ALLIANCE FORT WORTH AND KANSAS CITY, AMERICAN AIRLINES

Mr. BRANTLEY. Thank you. Chairman Costello, Congressman Petri and Members of the Subcommittee, thank you for inviting PASS to testify today.

PASS represents approximately 11,000 FAA employees, including approximately 2,800 flight standards aviation safety inspectors. In addition to other oversight responsibilities, airworthiness inspectors are responsible for ensuring that maintenance work performed at more than 4,900 certificated repair stations in the United States and overseas is done in accordance with airline and/or manufacturer instructions and FAA regulations.

In recent years, the overall dynamic of the aviation industry has been one of dramatic change, including airlines' increasing their reliance on outsourced maintenance. In fact, the IG has stated that the outsourcing of air carrier maintenance to repair facilities has grown to 62 percent of air carriers' maintenance costs in 2005.

PASS and the inspector workforce that we represent have serious safety concerns regarding this escalating trend and the FAA's ability to oversee the outsourced work. Of primary importance, there must be an adequate number of experienced and trained FAA inspectors in place with appropriate support to accomplish the agency's mission of safety oversight. Inspector staffing has not kept pace with the explosion of outsourcing and nearly half of the inspector workforce will be eligible to retire by 2010.

The FAA claims that it is impossible for the inspector workforce to increase at the same rate that the aviation industry is changing and is moving toward a risk-based approach in which data will be the primary tool to determine potential safety threats. We agree that the changing environment makes it essential to focus on an-

ticipating risks. However, that does not reduce the need to raise staffing levels for the inspector workforce. As explained in our written testimony, risk analysis is only as good as the data upon which it is based. When inspectors are not doing enough inspections, the amount of needed data is simply not available.

Therefore, PASS is requesting that Congress direct the agency to develop a staffing model for inspectors and follow the recommendations outlined in the recent study by the National Academy of Sciences with a deadline for completion. The inadequate level of inspector staffing is making it even more difficult to address other problems, with oversight of outsourced air carrier maintenance. For example, there are over 690 foreign repair stations certificated by the FAA. However, due to a lack of inspector staffing and the abundance of bureaucratic red tape an inspector must cut through to gain access to these repair stations, many inspectors say they are not confident with the level of oversight.

After an inspector waits a month or longer for authorization to visit a country, the repair station is fully aware of the visit and the element of surprise is non-existent, reducing the visit to a tour rather than an inspection. In addition, inspectors tell us of problems regarding the regulations governing foreign repair stations and the security at these facilities. If a foreign repair station wants to work on U.S.-registered aircraft or any aircraft that operate in this Country, those repair stations should be required to meet the same safety standards and regulations as domestic repair stations. Part of the growing threat is that repair stations are themselves sub-contracting out more and more maintenance work to other facilities, many of which are not certificated by the FAA and are therefore not subject to direct FAA oversight.

Recent IG reports have highlighted the dangers involved with the escalating use of non-certificated repair facilities, empathizing that these facilities are performing far more work than minor services, with some even performing maintenance critical to the airworthiness of the aircraft. Despite the fact that these facilities are performing safety-critical work, FAA oversight is practically nonexistent. This practice cannot continue without a significant increase in risk to aviation safety. PASS believes the most effective way to correct the disparity between work performed at certificated and non-certificated repair facilities is for Congress to require that air carriers outsource maintenance work only to certificated repair stations, a standard that should apply to both domestic and international facilities.

Oversight of outsourced maintenance is in critical need of attention and improvement. For too long, the FAA has responded to critical IG and GAO reports with sophisticated plans but no real action. In order for inspectors to continue to provide adequate oversight for the aviation system, the FAA must take immediate steps to increase staffing and funding for its inspector workforce so they are able to continue to ensure this Country's status as having the largest, safest and most efficient aviation system in the world.

Thank you, and I would be happy to answer any questions.

Mr. COSTELLO. We thank you, Mr. Brantley.

Mr. Little, you are recognized for five minutes.

Mr. LITTLE. Thank you, Mr. Chairman, and thank you, Members of the Subcommittee. I appreciate the opportunity of being here today.

In 1989, the TWU testified before this same Subcommittee against the FAA elimination of our long-established geographical restrictions on performance of scheduled maintenance in favor of legislation to reverse that rule change. At that time, we predicted that the elimination of limits on movement of maintenance would result in the outsourcing and loss of tens of thousands of jobs to overseas facilities. The FAA would not have the capacity to follow the overseas work, and the work and the workers who performed it would not be subject to the same regulatory requirements that U.S. mechanics must function under.

At that time, we were accused by the FAA and industry officials of grossly exaggerating those possibilities. I would suggest to the Committee that if it reviews the testimony it would find that in virtually every concern we expressed, unfortunately it has been validated. In particular, as pointed out in today's written testimony, the majority of heavy maintenance accomplished for scheduled U.S. carriers is no longer performed by those carriers, but is outsourced, and an ever-increasing portion is outsourced overseas.

As my brother from PASS points out, this situation has been generated, at least in part, by the absurd system of double standards the FAA has created. Carriers seeking to limit exposure to costly regulations governing the performance of maintenance can do so by outsourcing the work, especially overseas.

Rules comparable to the FAA rules on drug and alcohol testing is only one thing. Security, background checks, exposure to unannounced, and I underscore unannounced checks, are covered by legal enforcement which subjects persons performing maintenance to not only licenses suspension, there is revocation, there are fines for improper performance, either do not exist or are not really as rigorous as those in this Country.

The system of double standards is an increasing disservice to U.S. airmen, the flying public and as PASS points out, makes the job of their Members far more difficult. At American, after extraordinarily difficult negotiations that were conducted in the shadow of potential bankruptcy filing, the TWU managed to secure contractual protections that maintained aircraft maintenance work in-house. There are 18 heavy checks performed at American, all are done in-house in bases of Tulsa, Kansas City and Alliance Fort Worth. I believe at present, American is one of the only major carriers that still does the majority of its own maintenance.

However, while our contract protects such work over the long term, it is under continuing jeopardy if we retain the present regulatory system. Likewise, the chances of bringing work, as we have successfully done, in-house will be more limited over the long term.

If this Committee believes that the desire of the situation we should continue the regulatory status quo. However, I believe that is not acceptable. We ask the Committee to comprehensively examine and remedy the system of double standards, and re-impose some sensible limits on the movement of aircraft.

Again, I thank you for the opportunity to address this Committee, and I welcome any questions you may have.

Mr. COSTELLO. The Chair thanks you, Mr. Little, and would recognize under the five minute rule Mr. Valeika.

Mr. VALEIKA. Good afternoon, Mr. Chairman, Members of the Committee. Thank you very much for the opportunity to air my views about aircraft maintenance and the changes and challenges that are occurring.

First of all, just a brief background. I have spent 40 years in aircraft maintenance, 20 of those years plus running maintenance operations at three major airlines, the last of which was Delta Airlines, where I retired as senior vice president. By the way, we did $300 million worth of in-sourcing before I left. Just to let people know that the streets have two lanes on it, going both directions. I have been involved in all of those activities that created this great maintenance system, such as MHG, aging aircraft, human factors, et cetera, over my career.

The issues of outsourcing are not new. What is new is that the airlines in the past had extensive in-house capability that they are shedding in a very dramatic fashion. The other factor that is new is that it is happening on an unprecedented level in a very, very short period of time. Lastly, it is much more global than at any other time before.

In the past, outsourcing from the major carriers occurred on an ad hoc basis and usually for very specific items. Labor agreements prevented wholesale outsourcing and most of it was accomplished either in the U.S. or Europe. Now, however, the scope, both in the content and geography has changed. There are many reasons for this, but most of them boil down to economics, obviously. Since deregulation, two types of airlines have existed: the legacy airlines, which have the burden of infrastructure and entrenched high costs; and the so-called low cost carriers, which do not. To shed costs, airlines have taken extreme measures and the results in many cases have been to outsource maintenance.

Unfortunately, maintenance was burdened with many intractable rules and regulations, and management and labor were at odds, often resulting in bitter battles. For a variety of reasons, focus in the U.S. on in-house maintenance is diminished greatly. At the same time, globally it has flourished in parts, especially where low-cost maintenance is available. If you look at the investments in maintenance, the Middle East and the Far East and certainly Europe are making major investments in airline maintenance, where in the United States, for the most part, we have been diminishing those investments.

As stated by most of the testimonies, the safety system which we have created has not been impaired, as witnessed by all the available data. This is due to many layers of safety and oversight that is in place. First of all, the quality of maintenance that is performed is very important. The standards that the airlines have had, the cushions that have been built into these airplanes of course is very important. The aircraft, and this has not been said too much today, but we really do have very good aircraft today, compared to what we relate to in 1989 and so forth. We are looking at airplanes that are fundamentally much better, much easier to maintain and require fewer man hours and they are much safer. So there is a big change in aircraft.

When you look at engines, it is phenomenal what an engine does today. When I was at Pan Am, we used to remove an engine every 600 hours or 700 hours in a 747. An engine now can go for 30,000 hours without a removal. These factors are phenomenal. So there is a big change.

It is also very important to point out that much of the work that is performed or outsourced is not critical from a safety standpoint. Most of the hours spent on a heavy check on aircraft are restorative, such as cabin upgrades, cleaning, opening and closing. Thus, treating outsourcing generally as being all critical misses the point. But there are many critical functions, and these must have the highest standards and oversight. And these are the areas that need focus and specific attention.

Part of the economic problem that U.S. carriers have faced is the cost of the lower skill tasks versus the higher skill tasks. We tended to blur that distinction, and that is where a lot of our labor and management issues occurred, because for many of the lower skill tasks, we were paying very high wages. These were creating high costs.

Outsourcing is here to stay, and in my opinion will grow even more as the new generation of aircraft and engines come on board. The issue clearly is not who does the maintenance but how it is done. In the past, it was quite easy to oversee the performance and maintenance as it tended to be accomplished at one or two locations under uniform standards and procedures. Now it is being dispersed and under different standards, procedures, different languages and different cultures. Most of the regulations in the past evolved from the way we did maintenance. Thus, the FAA evolved its many rules based on best practices, and these were relatively easy to enforce since most of the airlines were both centralized in their work performance and record keeping.

What airlines have created was an integrated system approach of providing total support, albeit for themselves. What is currently happening is the disintegration of that system. The path that the airlines are taking today is dispersing the various functions and no one is amalgamating them into a one stop shop. As the airlines outsource more——

Mr. COSTELLO. If you could summarize very quickly, we have a vote on the Floor and we are going to try to get to Mr. Barimo as well.

Mr. VALEIKA. Let me just get to what the FAA, in my opinion, really needs to do. The current operating specifications, which are totally in the house of the airlines, I believe, need to be expanded to the providers. It is clear now to me that the rules and the regulations have to include the providers of maintenance, so the reliability of maintenance programs, engineering, your question on standardization, a lot of these things have to change. The providers of maintenance will have to share much more in the information technology, record keeping and so forth, which right now is only in the airlines' purview.

Mr. COSTELLO. We will have some questions concerning those issues.

Mr. VALEIKA. One last point I do have to make, though.

Mr. COSTELLO. It has got to be quickly.

Mr. VALEIKA. It is very quick. I think that with good information technology, there is no reason why the United States cannot be the premier provider of maintenance services. I think we are arguing over labor rates, not arguing over the cost of the process.

Mr. COSTELLO. Thank you.

Mr. Barimo, if you could summarize in five minutes or less. We do have a vote on the Floor, we are going to get your testimony in, and if you can do it in less than five minutes, we will go vote, there will be one vote on the Floor, we will immediately come back and resume the hearing.

Mr. BARIMO. We will do an on-time arrival.

Good afternoon. I am Basil Barimo, Vice President of Operations and Safety for the Air Transport Association of America. I appreciate the opportunity to join you this morning as you consider how the expertise of highly qualified third parties can be applied to air carrier maintenance programs. Long and varied experience confirms that contract maintenance can be both safe and efficient, and we shouldn't be hesitant to accept its use.

Before going any further, though, I want to emphasize that a starting point for any discussions that have aviation safety implications is this: safety is the constant, overriding consideration in our members' activities. They understand their responsibilities and they act accordingly. The U.S. airline industry's stellar and improving safety record is evidence of that.

Thus, we have a commitment to safety, we have the operational and regulatory structures to fulfil that commitment, and the results, our safety record, confirm that commitment. Maintenance contracting in the airline industry is overtaken in this over-arching context of dedication to safety. It is no different than any other activities in our industry in that respect.

Consequently, it is not a shortcut by which shoddy maintenance is tolerated. It is not a stray cutoff from an airline's overall maintenance program. And it is not adrift, detached from regulatory moorings. More decisively, the safety data don't offer a reason to question the use of contract maintenance. Outsourcing has increased over the past decade, but as this chart clearly shows, and this chart in fact goes to zero, the U.S. airline industry's maintenance safety record is the best it has ever been. If there were a systemic problem with contract maintenance, the safety data would have exposed it. This favorable outcome is expected and once again, context is crucial. Contract maintenance occurs in a highly structured, safety-oriented environment.

To begin with, the decision to outsource is for each airline to make. An airline makes that decision as the certificate holder, the regulated entity that is ultimately responsible for the safety of its operations. If the airline elects to use third party maintenance, the airline is not sloughing off any of its statutory or regulatory obligations. On the contrary, the airline is making a well thought-out determination that outsourcing will contribute both in terms of results and efficiency to the airline's maintenance program.

Contract maintenance is common and commonly accepted in the industry. Virtually every airline to some degree relies on contract maintenance, whether in the form of line, heavy or engine maintenance. And aircraft operators with demanding and sophisticated

maintenance needs, including the various branches of the U.S. military, contract for maintenance services.

We should also understand that highly respected aviation firms, including airlines, one of which is seated next to me today, performs third party maintenance. It is not an exotic practice wherever it is done. Oversight of contract maintenance is multi-layered and continuous and fully integrated into FAA's regulatory structure. The FARs explicitly recognize it. The FAA also certificates repair stations which must comply with an airline's FAA-approved maintenance program.

In addition, as a certificate holder, the airline must monitor the quality of the maintenance that is performed. To do so, airlines conduct in-depth and frequent audits of the repair stations that they use. They employ independent auditors, they assign their own on-site representatives to monitor repair station performance. Finally, they measure the reliability of the products produced. Then the FAA has a compliance program that oversees both the performance of the airlines and the repair stations.

Continued access to third party maintenance is the one ingredient in some airlines' efforts to remain competitive both here and abroad. That competitiveness is what enables passengers and shippers to receive the services that they want at prices that they are willing to pay. Compromise of safety can never be tolerated.

But neither should efforts to limit airlines' ability to obtain necessary services consistent with the highest degree of safety as economically as possible. This search for efficiency has meant that some airlines have shifted where their maintenance work has done. Sometimes it meant moving the location of in-house facilities, other times it has meant contracting with a third party to perform certain maintenance functions.

Neither type of change is pleasant. Both can adversely affect workers and their communities. It has, however, also meant job opportunities for some workers and new economic benefits for new communities. Far from resulting in the export of the majority of U.S. maintenance jobs overseas, it has meant that we have been able to retain those jobs in the United States. This is a key point in evaluating the effects of contract maintenance.

Thank you for allowing me to briefly express our views this morning, and we look forward to more discussion.

Mr. COSTELLO. We thank you, and the Subcommittee will stand in recess. I would expect if we have the one vote and no unexpected votes, we will be back in about 20 minutes. The Subcommittee stands in recess.

[Recess.]

Mr. COSTELLO. The Subcommittee will come to order, please.

The Chair recognizes Mr. Campbell.

Mr. CAMPBELL. Thank you, Mr. Chairman, and good afternoon.

Thank you for inviting American Airlines to participate in today's hearing on outsourced air carrier maintenance. My name is David Campbell, I am the vice president responsible for two of our three maintenance bases at Alliance Fort Worth and in Kansas City, Missouri. Our third maintenance base is located in Tulsa, Oklahoma.

I cannot emphasize enough that safety is American's number one priority. As such, we welcome the diligent and continuous oversight of the FAA, and believe that it is an important component of our commitment to safety. I will explain in a moment our day to day activities with the FAA.

First, however, I would like to describe how we have taken a substantially different path than other airlines in an industry where outsourcing is a trend. With employee cooperation and productivity improvements, we have been able to avoid bankruptcy and restore our company to a position of financial stability. We still have substantial amount of debt. We have been able to greatly improve our balance sheet and our economic future.

We have achieved this financial turnaround in large part because of the partnership that we formed with the Transport Workers Union, or the TWU. Three years ago, American Airlines and the TWU committed to transforming our maintenance business from a cost center to a profit center. Today, we perform over 90 percent of all maintenance work, and 100 percent of our heavy maintenance work at American Airlines facilities. Approximately 9,750 employees are working at our three maintenance bases, repairing and maintaining our fleet of 700 large aircraft, as well as working on aircraft for dozens of other carriers.

By partnering with our employees and by implementing continuous improvement processes, we have reduced costs, gained efficiencies and optimized operations. We have also been able to acquire and perform maintenance work for other airlines, despite the fact that we pay higher salaries and better employee benefits than virtually non-airline vendor.

Two years ago, a joint team from our Tulsa maintenance base announced a breakthrough goal to generate $500 million in value creation. Last month, a Tulsa team proclaimed that they not only made the goal, but they beat it by $1 million. This year, we have a target of $175 million of additional third party revenue. In order to make that happen, I am proud to announce and pleased to announce that our board of directors agreed yesterday to invest $100 million into our maintenance and servicing groups. Over the next five years, American will update its maintenance facilities, invest in technology, make process improvements and increase productivity in order to offer world class, state of the art technical service and attract new customers. In other words, while many of our competitors have outsourced work to low labor cost regions around the world, we have actually in-sourced work from many of those same regions and look forward to acquiring more work.

Now I would like to turn to our relationship with the FAA. The United States Code states that it is the duty of the air carrier to provide service with the highest possible degree of safety in the public interest. To assure that we meet this obligation, we work very closely with the 37 inspectors assigned to American Airlines. Every morning at 8:15, a safety-related conference call is held with the FAA three principal inspectors. On this call, we have representatives from our maintenance and engineering team, flight, safety, security and environmental departments. We discuss mechanical issues, safety issues and any other relative concerns of the day.

These same departments also participate in a weekly call where long-term issues and concerns are addressed.

In addition to that, we also have executive roundtable meetings that we hold with senior management or senior executives from American and the principal inspectors. Inspectors who are assigned to American maintenance bases are dispatched from the agency to Dallas Fort Worth airport's certification office. They often arrive at our bases unannounced. Our employees know that the inspectors may talk to whomever they wish and review all records and logs without interference.

We also agree with the FAA to adhere to a safety risk management program that allows our records and reports to be shared to enhance the oversight of the carrier by identifying risks and mitigating hazards. Inspections, unannounced reviews and oversight by the FAA are an integral part of our continuous improvement process, and we welcome their involvement. We believe that rigorous FAA oversight should be a critical part of any maintenance program, regardless of where the maintenance is being performed and by whom.

I will be happy to take any of your questions. Thank you.

Mr. COSTELLO. Mr. Campbell, thank you for your testimony.

Mr. Goglia, you are recognized under the five minute rule at this time.

Mr. GOGLIA. Thank you, Mr. Chairman. It is a pleasure to be here in front of you today.

I would like to announce to you that I have conducted a thorough review of the paperwork that you provided to us today outside on the table. I have observed your operation here today and I certify you to go forward for the next year and conduct these hearings.

[Laughter.]

Mr. GOGLIA. And that is about as thorough as a foreign repair station gets from the FAA, because we can't come back again, because we don't have any travel money, and we can't stay overnight, because we are not going to get reimbursed on the per diem. So as we talk about what the FAA does, keep that in mind, because that scenario is accurate.

Now, we had a nice chat up in the hall in the very beginning about safety standards, safety records. A gentleman by the name of Jerome Lederer, who happened to be the person who founded the Flight Safety Foundation, is known as Mr. Safety. He passed away not to long ago at 100 years old. He came back from retirement to do the Challenger accident in the 1980s. He has said repeatedly, and I don't know if this was an original statement of his or not, but he said that the absence of an accident is not an indicator of a safe operation. That is 100 percent correct.

Although I am a firm believer that the ATOS system and the SMS system is needed, that we can make great gains with it, it doesn't replace the physical presence. You have hit around the edges of it, but I want to share something with you. In my past, working for an air carrier, one of the tasks that I performed virtually every day at the end of the shift was a review of the paperwork. Because we were dinged repeatedly by the FAA on paperwork violations. So that paperwork, when it left my hands, was

pristine, signatures in every box. I got creative writing 101 down to a science. Everything was done.

If you base your monitoring system, ATOS, SMS, on what came out of my hands, you would think that operation was perfect and pristine. It was far from that. The operation was just like everyone else's operation, we had problems. So the paperwork review is not the only answer. You have to be there. Those inspectors have to be there when the work is done, and when the airplane, if it is nose to tail work, is finished. The number of complaints or gigs or non-routines that occur after we think the airplane is done and we start checking it, maybe a taxi check, maybe a ferry flight, a maintenance ferry flight to check things out, the number of items that come back from those events can be staggering. Yet most of them don't ever find their way into the data collection system. That is why the physical presence of an inspector is so important at the end.

Now, maintenance is based upon good paperwork. That paperwork foundation comes from the instructions for continued airworthiness found in the certification requirements that are imposed upon the manufacturer. In the past, right to this minute, all the previous airplanes have lots of problems with those manuals. We call them maintenance manuals. Those maintenance manuals, those procedures are not verified, they are not validated. Unlike the flight deck, before a pilot can use a procedure, it is thoroughly vetted. The maintenance procedures are not vetted. Some are, but they are not 100 percent vetted.

That gives us, as a mechanic, and you go through the process, and you can't follow the procedures, after a while you don't even look at the procedures, whether or not they are good or not. Because you know how to do your job. We have become very good at doing our job looking at the illustrated parts catalog, we are very good at taking things apart and putting them back together the way we did it. The problem there comes from when I take it apart and he puts it together. There is a big disconnect there. And we have had a lot of problems in that area.

To the FAA's credit, they have been working on this. There is a partnership in the works with SAE, which is an engineering organization, not for profit, PAMA, the Professional Aviation Maintenance Association, they are working on voluntary standards with the industry to try to raise that. But there needs to be a requirement up front that those procedures are validated, verified and known to be good. That was the reason why we killed those people in Charlotte, the Air Midwest crash that Congressman DeFazio mentioned earlier. That is why we killed a couple of people, with the exact same issue a few months later, in Hyannis, Massachusetts.

The list goes on, I could go on and on about the fatals and the accidents and the role of procedures and manuals. We need to get a handle on it. SMS will help, but it needs to be robust. The FAA needs to get a higher buy-in in that process than they have today. We need to get more involvement by people, be it ASIs, the inspectors, involved with that system, especially the ones that don't agree with it.

And I know I am out of time. I am a Washington windbag.

[Laughter.]

Mr. COSTELLO. We thank you for your testimony and we will have some questions for you.

The Chair recognizes Mr. Filler under the five minute rule.

Mr. FILLER. Thank you very much, Mr. Chairman.

A couple of points I would like to make at the outset. I am Marshall Filler, Managing Director and General Counsel of the Aeronautic Repair Station Association. I have spent my 34 years in aviation and safety regulation, that is my line of work. I know it is very tempting to look at certain accidents as perhaps proving a global point. But I do want to just point out to the Subcommittee that no one, no one aspect of our industry has a monopoly on accidents. Indeed, when accidents happen and people are killed because of mistakes by anybody, it is tragic. Whether those mistakes are made by certificated mechanics, employees of a repair station, people who design aircraft or produce them, it is all something that we need to look at.

So I think we just need to be careful about examining or giving too much credence perhaps to single events as possibly proving a greater point.

I would like to also mention, Mr. Chairman, that you were very interested this morning with the FAA in where the air carriers contract out their maintenance to. One thing that I don't think came across as loudly as it should have is that every airline that I have ever been around has something called an approved vendors list, an AVL. That approved vendors list includes all of their maintenance vendors. Most of them, or virtually of them, have to undergo a pre-qualification audit. This is part of the FAA maintenance program that every airline has.

I know that some carriers, even some in this room, provide on a quarterly basis to their FAA office a copy of that approved vendor list, showing them in very neat, nicely divided sections which of their vendors do substantial maintenance, which of them do component maintenance, et cetera. So I think that the FAA could certainly ask the airlines for this information.

Another point that came up was the notion of critical work being done by these so-called non-certificated repair facilities. I do want to point out that there is a built-in limitation under Part 65 of the regulations so that when work is done by a certificated A&P mechanic under his own certificate, that person may not approve a major repair or a major alteration for return to service. So that must be done by a repair station, or it must be done by an air carrier. So that is a built-in limitation in the regulations.

With respect to the Charlotte accident, there was a required inspection item which is by definition a critical inspection in Part 121 that was indeed performed by certificated people individually, not affiliated with the repair station. And certainly one of the things this Committee could explore is whether they wanted to expand that limitation in part 65 to include required inspection items. The vast, vast majority, Mr. Chairman, are done by repair stations and airlines' own employees.

As far as foreign repair stations go, I know there is an awful lot of interest in this. A couple of points I would like to make about that. In Europe, and more than half of the foreign repair stations

are actually located in the European Union, they require type ratings for their technicians, type ratings. We don't require that here. So that is an example, you can make an argument, that perhaps that is a higher level of safety. We look at it at ARSA as that is an equivalent level of safety. It is simply a different system. But it certainly gets us to where we need to be from a safety perspective.

We disagree that an airline will go to a low-cost provider simply because they are a low-cost provider. If you are dealing in particular with airplanes, if that low-cost provider does shoddy work and something breaks, then by law what breaks has to either be fixed or deferred, as a matter of law. When that airplane has to be fixed and taken out of service, it doesn't make money.

So before you know it, the air carrier that may have saved some money by contracting out to a cheaper provider, be it a U.S. or a foreign provider, now has eaten up that entire savings, if you will, because they have paid for it on the back end.

I wanted to make the point also, and I know my time is—can I have one more minute, Mr. Chairman, and I will wrap it up?

Mr. COSTELLO. How about 30 seconds.

Mr. FILLER. All right, I will take 30 seconds. Thank you.

With respect to security, the background check requirement in our security regulations attaches because people have unescorted access to the security identification display area at an airport. So if I work for a repair station and I need to have access to that SIDA area, I have to have a background check, every bit as much as if I were an airline mechanic. If I work in an industrial park 25 miles away, working on components, the risk from a security perspective is different. So we just should avoid the one size fits all tendencies sometimes that are based on, well, there is no security requirements for repair stations as there are for carriers.

I know that I have exceeded my time. I would be very happy to answer any questions you have. Thank you, sir.

Mr. COSTELLO. Thank you. We wish that we had unlimited time as well, because there are a lot of issues we need to go into. That is why we are going to hold additional hearings at a later date.

Let me begin by asking a few questions. Mr. Brantley, in your testimony you talk about when a problem is detected that because of a lack of time and reduced staffing that it is very difficult to follow up to make sure that the problem is corrected. I wondered if you might expand on that and tell us what can be done to change that, so when a problem is detected there is sufficient time and sufficient personnel.

Mr. BRANTLEY. Thank you, Mr. Chairman.

What we are being told by our inspectors in the field is that one, the inspections of a repair facility, an outsource facility, are going to be pretty rare, maybe one or two a year, maybe a handful where they are able to get there more often. And when they go, they are not going to be there for a few days to do anything in-depth. They are going to be going for the day, which means with travel time, it really cuts down the amount of time they can spend at the facility.

So if they do find something, one, they need to do their investigation and gather any materials they need, whatever they think they

are going to need to follow up with at that time, because they are not going to be there tomorrow and they are not going to come back next week. And then depending on the problem, the appropriate actions will be taken. But it is very rare that the inspector will be allowed to go back and actually see if the problem has been corrected. It is identified, but it is not something that is followed up on by the agency.

Mr. COSTELLO. The issue of insufficient funding for travel, you brought it up in your testimony and Mr. Goglia brought it up in his testimony. I wonder if you might touch on that and tell us, is that in fact a problem, the lack of sufficient travel funding available?

Mr. BRANTLEY. Yes, absolutely, Mr. Chairman. Again, it is, there are times when an inspector is going to a facility that they, they actually plan out an inspection ahead of time based on why they are going there. It may be that two or three people are needed, at a minimum maybe two, a maintenance and an avionics inspector and that they are going to need a couple of days to do the kind of in-depth review that they feel they need to do.

And more often than not, if they are allowed to go, they are told, one of you are going, you are going to go for the day. And they are told it is because there is not enough money for the travel.

Mr. COSTELLO. So you are actually told, the inspectors are told that, look, you can go, but you can only go for a day because we don't have enough travel money?

Mr. BRANTLEY. Yes, sir. Many times they are told, there is not enough money for it.

Mr. COSTELLO. Does this happen on a regular basis, or is it at a particular time of year, at the end of the fiscal year, or is it a constant problem?

Mr. BRANTLEY. No, sir, it is a constant problem. An inspector will say they request the funds to go do an inspection. It may take a couple of months even before they are told no. But it is a continuous problem.

Mr. COSTELLO. You talked about some of the repair facilities, and they may be visited once or twice or a few times a year. Are there unannounced visits ever? Do they always notify the facility that hey, we are coming next Wednesday, or do they ever do unannounced visits?

Mr. BRANTLEY. Something I would like to touch on that I heard from the FAA this morning, several times, that they can do unannounced inspections or the regulations allow unannounced inspections. That is true. But what I am talking about is what they actually do. It is extremely rare for an inspector to do an unannounced inspection.

Quite frankly, if they do, they are more likely than not to be punished for it. A customer service initiative can be filled out against them, claiming they are disrupting the operation showing up unannounced. And that inspector is going to be reassigned, they won't be going to that facility any more. So they have learned that regardless of what the regulations say, this is how you are going to conduct business.

Mr. COSTELLO. Mr. Goglia, I wonder if you might follow up on that question, both the issue of unannounced inspections and also the travel, lack of funding for travel, both of those issues.

Mr. GOGLIA. I will start with the travel. Oftentimes the travel budgets are stripped out of some of these FSDOs to fund other projects within the agency. Sometimes that can occur very early in the fiscal year.

The unannounced visits, it is very difficult for an inspector to just start an unannounced visit. But under the CMO, certificate management office process that the FAA has, there is much more latitude. There is one little bright spot in what is going on in the FAA today, in that Mr. Ballough is actually trying the certificate management office process for a larger repair station. I happen to believe that the certificate management office concept should be at every repair station that does nose to tail work. Nose to tail means the airplane is in the hangar when they are working on it. Not that you have taken an engine off and sent it to a repair facility or any component and sent it to a repair facility, because that is a different oversight process. I think that we do a pretty decent job of that.

But the nose to tail work is where we see the biggest number of problems. It is the most difficult to oversee, and it is the one where the FAA really needs to have a presence while that work is going on.

Mr. COSTELLO. Let me follow up with a couple of quick questions, then I will go to Mr. Petri and Mr. DeFazio. I mentioned in my opening statement that it has been suggested that we should standardize the procedures and the manuals in order to save time and to bring more efficiency to the process. I wonder if you might comment on that.

Mr. GOGLIA. That has been a goal of the Air Transport Association and many in the industry for a long time. Many of the airlines believe that they are unique, that they need their own set of procedures to do things. It has been my experience when I have visited facilities and look at people accomplishing certain tasks that I have accomplished as a mechanic or as an inspector myself, that regardless of the paperwork, we tend to do them all the same. In other words, the work is accomplished the same way, regardless of what the paperwork says. I think we can benefit by a real concerted effort to standardize procedures.

Mr. COSTELLO. Mr. Barimo, a quick question. PASS has suggested that air carriers should only be allowed to outsource their maintenance to certificated repair stations. I wonder if you might comment on that.

Mr. BARIMO. I am glad to, Mr. Chairman. I have read the IG report that addresses non-certificated repair stations. We have gone back to our members and confirmed that ATA members are using that type of maintenance service for strictly low level, on-call service type of repairs, not scheduled maintenance, not critical maintenance, as it has been defined today.

So let me start by saying, I think we have a misconception out there that this is a widespread practice. Having said that, air carriers use certificated mechanics for ad hoc work. It is at locations where an airplane might break and they need to just move the air-

plane to the next station, and we are talking about maybe deactivating a system, checking fluid levels, something very straightforward.

I am not familiar with any of our members out there changing engines or replacing critical flight controls using this type of low-level maintenance service.

Mr. COSTELLO. The Chair recognizes the Ranking Member, Mr. Petri.

Mr. PETRI. Thank you very much.

I apologize for missing the underlying testimony. So maybe the questions have been asked already, but I have a couple of questions. I don't know if you are exactly the people to ask them of.

Mr. Campbell, I am kind of interested in the issue of safety and maintenance of planes and Government inspection, I guess, as the subject of this hearing. American Airlines clearly insures its planes, people who will lose money if they crash have some interest in the safety of the operations and the maintenance of the operations. Are you at all familiar with that?

Mr. CAMPBELL. No, sir, I am not.

Mr. PETRI. Okay. Well, because it seems to me that there is a whole, huge, regulatory private system out there, there has to be. They are not going to insure a plane unless they are pretty confident everything is being done to make sure it is operated as safely as possible. That airline gets a lower rate if they do that, and they are going to pay a high rate or not get insurance if they don't.

Yes, sir?

Mr. GOGLIA. Mr. Petri, while I was at the NTSB, and after the ValuJet accident in 1996, I had the opportunity to see the precursor to ATOS, which was a work that was done out of Rutgers University and TSI was a contractor at Volpe in Massachusetts, where I live. So I was interested in that process. And they actually had ten areas which they could identify risk in any airline. Those indicators showed at that point in time that ValuJet was a ten times greater risk than U.S. Air.

So I found that to be more than fascinating. And I pursued that line of thought that you just had with the insurers, starting with USAIG and AAAU in New York, and quickly found out that it had to go to a higher level, which meant Lloyds in the secondary market. Over about a two year period of time, I made repeated visits to London, to Lloyds, pitching this program at the very highest levels of the underwriting. And the bottom line to all of that is that they would accept the certification of the FAA as the standard, if you had a certificate, that is all they looked for.

One of the things that I found really painful was the fact that their own attorneys said that if they were to stick their nose in and require their assureds to collect this information and report it to the CEO, was what I was asking, because he has the fiduciary responsibility for the corporation, that they would then become involved in the lawsuits. So it was just a total hands-off from the insurers. As long as they held a certificate from the FAA, that is as far as they wanted to go.

Mr. PETRI. You are not aware, then, of any insurance industry councils or studies or, you would think there would be some feedback, they would at least want some input on what those standards

are. And they insure, of course, fleets all over the world. You would think there would be a competitive advantage for one of these insurers as opposed to another to select the safer flights. They must have some way of doing that, or maybe they just decide they will take that risk without—it doesn't make sense to me.

Mr. GOGLIA. It didn't make sense. And they do have some internal looks that they do, but nowhere near the depth that we are talking about here today.

I will share with you one other thing that was said to me during those meetings. It was after the hurricane hit Homestead, Florida and we had all that devastation. One of the people that was present, in a rather small group of that insurance group, I am talking about senior management, one of them had taken a considerable hit with payments in Florida. He had low-balled his bid to a U.S. operator for the insurance. A U.S. operator that I knew, that I worked for, and I don't hold in high regard. He told me face to face that he was rolling the dice because he could use the premium money.

So that is a whole different set of drivers in that business that doesn't make sense to you and me to go off and buy insurance in this rate shots and this risk and all of that. It doesn't equate in this business.

Mr. PETRI. Mr. Valeika?

Mr. VALEIKA. In my role both at Delta as a senior VP and Continental and Pan Am, all three where I was in charge of maintenance, we did have meetings, the insurance people would meet with me. I would, I don't want to say certify, but they certainly would verify some of the data where the maintenance was done, things of that nature. We did have those meetings. It was part of a standard operating procedure. I can only speak for those airlines because that is where I was involved in it.

But I personally, as the head of the maintenance division, met with the insurers, usually on an annual, maybe a semi-annual basis. And the questions would be asked, where are your airplanes maintained, what kind of problems you have had, just a general kind of discussion. But that did happen on a routine basis.

Mr. COSTELLO. The Chair thanks the gentleman and recognizes the gentleman from Oregon, Mr. DeFazio.

Mr. DEFAZIO. I thank the Chair.

So Mr. Barimo, then is it the ATA's position that it would be acceptable for the FAA and/or Congress to restrict non-certificated facilities from doing what I earlier described as critical maintenance?

Mr. BARIMO. Sir, I would argue that based on the feedback that I have received to date, that is already happening. The restriction is there.

Mr. DEFAZIO. Well, it is not happening on the part of the FAA, clearly. To them it is like, as long as there is an A&P mechanic there, it is okay, it doesn't matter. And even when I cited an instance where people died, it is still okay, that met all the rules. I am just trying to nail you down here. We do have testimony here from Mr. Brantley saying that there are 21 domestic and foreign non-certified facilities that perform maintenance critical to the airworthiness of the aircraft. And we just worry about the slippery

slope down here. So anyway, it seems like yes, you would support that.

Mr. BARIMO. Really, from our standpoint, we talk about insurance providers. We are talking about FAA oversight. The carriers take their safety responsibilities very seriously.

Mr. DEFAZIO. I understand that. But there is always a bad apple in the barrel, often there is. I remember when Mr. Lorenzo kept trying to drag the industry down. We have to worry about those sorts of things.

So Mr. Goglia, I am disturbed about the manuals, which as I understand it are called the Instructions for Continued Airworthiness. It sounds pretty important to me, sometimes called maintenance manuals. You are saying they are neither validated, verified nor validated, meaning they contain procedures that won't work, don't work or won't ensure the continued airworthiness of the aircraft, is that correct?

Mr. GOGLIA. That is correct, they are not 100 percent verified or validated, unlike the flight manuals.

Mr. DEFAZIO. Okay. I guess I can think back to that Chicago crash, DC-10, where the engine dropped off. That would have been perhaps a problem in the manual?

Mr. GOGLIA. It was an attempt to circumvent the manual proceedings.

Mr. DEFAZIO. So in that case the manual was correct and the maintenance was incorrect?

Mr. GOGLIA. Right.

Mr. DEFAZIO. Okay. But we do require that the flight operation manual that the pilots have up there to refer to does, is verified and validated?

Mr. GOGLIA. Yes. In fact, the pilots cannot use a procedure unless has been vetted.

Mr. DEFAZIO. So what would be the bar to getting better manuals?

Mr. GOGLIA. All it is is a process, sir. When you build an airplane, you have to fly it for about a year, the manufacturer. It is a nice new airplane, nothing much breaks. When something does break, when they have occasion to change an engine, a wheel, a brake, anything, at that point they will verify those procedures.

But because it is new, they don't get to do a lot of that. What happens is after it is in service with an airline, now the procedures that have been written by some person within their organization get to be done by the average person on the line, the average maintenance person. At that point, we find the problems.

Mr. DEFAZIO. The jack screw on the DC-9 issue, that one?

Mr. GOGLIA. I was afraid of that. That was the most painful accident I have ever worked. From a maintainer's point of view, to kill 88 people because we couldn't grease—excuse me.

Mr. FILLER. Mr. DeFazio?

Mr. DEFAZIO. Yes.

Mr. FILLER. If I could just add to what Mr. Goglia said, with respect to the certification process and the development of ICAs, all focusing on the ICAs at least at the airplane level or aircraft level, they are all based on so-called approved technical data, which is

data that has been shown to comply with the airworthiness standards. So if it is a large airplane, Part 25.

In addition to that, when the maintenance manuals are created, there is a unit of the FAA called the aircraft valuation group that specializes in the review of ICAs. Now, do they go out and actually try every repair that is listed in the airplane maintenance manual? No, they don't. But they do review it, and they are reviewed by people who are knowledgeable about maintenance procedures. It is one of those things that we just have not achieved perfection yet.

Mr. DEFAZIO. Well, but I mean, if you make a plane, you think, okay, I am making this plane, it will take a year to certify, I will take one of them over here, I will take the engines off an align, I will take this part out, I will do that, and I will verify what I am telling people they should do to remove those parts and maintain them.

Apparently that is not being regularly done. Mr. Goglia had an example of Airbus and Jet Blue and the fact that they were having problems with engine changes. They were following the manual, it just didn't work. Then apparently, finally, Airbus, after many people complained, finally sent a team over, and they said, oh, yes, you are right, it doesn't work, we will rewrite the manual.

Mr. FILLER. In some cases, you are absolutely right, sir, that does exist. These manuals are——

Mr. DEFAZIO. I would think that would be part of the certification process, you made it, you take it apart, put it back together and you verify what you put down here as directions. That does not seem unreasonable to me. I was a bike mechanic, not a plane mechanic. But the manuals pretty well worked for me. Someone had vetted that stuff.

Mr. FILLER. Repair development engineers do engage in that practice. But if the question is, does the FAA review all these repairs to make sure that they actually work, the answer to that is just no. There are just too many of them, sir.

Mr. DEFAZIO. Okay.

Mr. GOGLIA. But you know, they all have to review them beforehand. Maintenance is a process. Don't lose sight of the fact that everything we do has order in it. If you have a list of, let's say the list is 500 items long, they are in the maintenance manual, procedures in the maintenance manual, you simply can ask the airlines, as a manufacturer, the first time you accomplish any one of the items on this list, to report back to us that it worked or didn't work, and improvements.

Mr. DEFAZIO. Sort of like we do with doctors and drugs.

Mr. Brantley, I was just really disturbed, we had allegations and Mr. Goglia I think was sort of making fun, but is it accurate to say we are really constraining our actual physical inspections because there aren't enough people, there is huge concern about overtime and there is not an adequate travel budget? You talked about people just trying to go from one State to another, let alone a foreign country.

Mr. BRANTLEY. Yes, sir, that is absolutely accurate. It is a shame, because it doesn't need to be that way. Again, if the agency were truly looking at the work that needed to be done, the resources needed to do it, and where people needed to be to apply

those skills, much of that could be avoided. They would be asking for the money they need rather than asking for the money they are willing to ask for. Those are two very different numbers, as you well know.

Mr. DEFAZIO. It has been a frustration, and I am just summarizing here, Mr. Chairman. My entire time in Congress I keep having regulators come before me and I say, look, I know you are being threatened by your political bosses, but just tell us what we need, not what they will let you ask for over at OMB. I am very sorry to hear that in this critical area of inspections and safety, that that prevails. I hope we can pry an honest number out of FAA on what they need and we can authorize it in the upcoming bill. I would love to have contributions from your folks on what they think we need.

Mr. BRANTLEY. Thank you, sir.

Mr. DEFAZIO. Thank you, Mr. Chairman.

Mr. COSTELLO. The Chair thanks the gentleman from Oregon.

We thank all of our witnesses today for your testimony. It has been very interesting. As we go through the reauthorization process, we certainly will take into consideration what we have learned here today.

With that, the Subcommittee stands adjourned.

[Whereupon, at 1:33 p.m., the Subcommittee was adjourned.]

OPENING STATEMENT OF
THE HONORABLE RUSS CARNAHAN (M0-3)
AVIATION SUBCOMMITTEE
TRANSPORTATION AND INFRASTRUCTURE COMMITTEE
U.S. HOUSE OF REPRESENTATIVES

Hearing on
FAA's Oversight of Outsourced Air Carrier Maintenance

Thursday, March 29, 2007, 10:00 AM
2167 Rayburn House Office Building

Chairman Costello and Ranking Member Petri, thank you for holding this important hearing on the FAA's oversight of outsourced air carrier maintenance.

This hearing is very timely, considering the large amount of air carrier maintenance that have been outsourced. Since 2001, over 27,000 maintenance jobs have been eliminated at legacy carriers. While I am concerned about the reduction of jobs at airports like St. Louis Lambert, I understand the dire situation of many of airline's finances and their need to re-examine their costs.

However, I am alarmed at the inadequacy of FAA supervision of outsourced maintenance facilities. As a December 2005 DOT IG report stated, non-certified facilities are not just checking oil levels and changing tires but are allowed to complete the same type of work as certified facilities. However, comparable layers of oversight and quality control do not exist at non-certified maintenance, which could put our constituents who live every day at grave danger.

As this subcommittee examines a reauthorization of the FAA, we must scrutinize the insufficient oversight of aircraft maintenance and require that the FAA take additional steps to protect the passengers, flight attendants, and pilots on board each flight. I look forward to working with Chairman Costello and Ranking Member Petri on these important issues.

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OPENING STATEMENT OF REP. STEVE COHEN

Transportation and Infrastructure Subcommittee on Aviation

"The Federal Aviation Administration's Oversight of Outsourced Air Carrier Maintenance"

March 29, 2007

I am pleased to be here today to receive testimony from representatives of the Federal Aviation Administration (FAA), the Department of Transportation (DOT) and others regarding FAA's oversight of outsourced air carrier maintenance.

According to the DOT Inspector General (DOT IG), air carrier outsourcing has contributed to the elimination of over 27,000 jobs at mainline carriers since 2001. The DOT IG and the Government Accountability Office have expressed concern about the potential attrition in the FAA's inspector workforce.

I am eager to learn from our witnesses today their various ideas on how to address these pressing issues.

STATEMENT OF
THE HONORABLE JERRY F. COSTELLO
SUBCOMMITTEE ON AVIATION
HEARING ON
THE FEDERAL AVIATION ADMINISTRATION'S OVERSIGHT OF
OUTSOURCED AIR CARRIER MAINTENANCE
MARCH 29, 2007

- I want to welcome everyone to the hearing on the *Federal Aviation Administration's Oversight of Outsourced Air Carrier Maintenance.* This hearing will be the first in a series of hearings on aviation safety and the Federal Aviation Administration's (FAA) oversight of outsourced maintenance.

- Although the United States has the safest air transportation system in the world, with a fatal accident rate involving passengers of about 1 in every 10 million flights, we must not become complacent about our past success.

- The Department of Transportation Inspector General (DOT IG) lists "Aviation Safety – Performing Oversight that Effectively Utilizes Inspection Resources and Maintains Aviation System Safety" as one of the Department of Transportation's top ten management challenges. Over the last 10 years, a growing trend in the airlines looking to trim costs has resulted in an ever increasing amount of maintenance work being outsourced to both domestic and foreign repair stations.

- The DOT IG will testify today that over the last 10 years, air carriers continued to increase the percentage of costs spent on outsourced maintenance from 37 percent to 62 percent. The DOT IG also notes that more work is being outsourced to foreign repair stations.

- With regard to outsourcing to foreign repair stations, a January 2005 *Wall Street Journal* article states that U.S. carriers pay $65-$70 per employee hour, including wages and benefits, while outside repair stations in North America, Europe and Asia pay only $40-$50/hour and Latin American repair stations pay as little as $20 to $26. As a result, U.S. airlines are relying more heavily on foreign contractors to perform everything from routine maintenance to major overhauls. We must ensure that the FAA has a robust system to oversee maintenance work conducted outside of the U.S.

- According to the FAA, there are approximately 4,231 domestic and 697 foreign FAA-certificated repair stations, with approximately 801 FAA safety inspectors overseeing them. Both the DOT IG and the Government Accountability Office have expressed concerns about potential attrition in FAA's inspector workforce. It is my understanding that over one-third of FAA's inspector workforce will be eligible to retire by 2010. I am also told that since the end of FY2006, the FAA has already lost 77 inspectors. In addition, I am concerned about the level of staffing in FAA's International Field Offices (IFO), which are responsible for overseeing foreign repair stations. For example, it is my understanding that the Singapore IFO only has seven inspectors to oversee 103 repair facilities.

- It is essential that we make the investments in FAA's workforce now so that they can meet the new challenges for maintaining the highest level of safety in this ever changing aviation environment, including ensuring proper oversight of domestic and foreign repair stations. Last year, the National Research Council reported that FAA lacks staffing standards for inspectors and recommended that the FAA undertake a holistic approach to determine its staffing needs. It is incumbent on the FAA to take this recommendation seriously so that we can have a sufficient number of inspectors in the right places.

- Over the last few years, the DOT IG has made several recommendations with regard to FAA's oversight of foreign and domestic repair stations, suggesting that inspectors focus their oversight on high risk areas. The FAA has since moved to a risk-based system for maintenance oversight, but it is my understanding that full and effective implementation has not yet been achieved.

- In a December 2005 report, the DOT IG found that an increasing amount of scheduled airline maintenance is being performed at non-certificated repair facilities and that the FAA was unaware of the extent of this practice. Non-certificated facilities are not required to meet the same standards, such as quality assurance and training programs, as certificated FAA repair stations. The DOT IG made a recommendation to the FAA that it should consider limiting the type of work that these contractors can perform. I look forward to hearing from both the DOT IG and the FAA on the progress in implementing these recommendations.

- The FAA inspector workforce has also raised concerns about staffing, insufficient funding for travel and the impact on conducting inspections, as well as moving to a risk-based oversight system. Tom Brantley, President of the Professional Airways Systems Specialists (PASS), which represents the FAA safety inspector workforce, is here today to discuss these concerns in greater depth.

- Some have suggested that perhaps moving to some form of standardized maintenance practices might improve safety. Each airline has different standards for maintaining their aircraft, with repair stations required to perform their maintenance work in accordance with each individual air carrier's manual and maintenance program. I would like to obtain the views of the panelists on this suggestion.

- In contrast to the growing maintenance outsourcing trend, Mr. David Campbell from American Airlines, has a unique and commendable story to tell as American performs 100 percent of their own heavy maintenance. In addition, it has actually in-sourced work by obtaining an additional $175 million in third-party revenue this year.

- In March 2005, a joint team from American's Aircraft Maintenance and Overhaul base in Tulsa, OK announced a "breakthrough" goal to generate $500 million in value creation, which would turn the maintenance facility base into a profit center. The Tulsa base announced just last month that it had achieved $501 million, exceeding its goal. American's innovation and cooperation between the airline and its unions demonstrates to us that in-house maintenance works and can be profitable.

- We must provide proper funding, stringent oversight and real standards of accountability to ensure that our aviation system remains the safest in the world. With that, I want to again welcome our witnesses today and I look forward to their testimony.

- **Before I recognize Mr. Petri for his opening statement, I ask unanimous consent to allow 2 weeks for all Members to revise and extend their remarks and to permit the submission of additional statements and materials by Members and witnesses. Without objection, so ordered.**

Opening Statement for the Honorable Eddie Bernice Johnson
House Subcommittee on Aviation
FAA's Oversight of Outsourced Air Carrier Maintenance
Thursday, March 29, 2007 – 2167 RHOB

Thank you Mr. Chairman.

I want to thank you and Ranking Member Petri for holding this important and timely hearing this morning.

Your early consideration of matters pertaining to the reauthorization of the Federal Aviation Administration is commendable.

Based on your hearing schedules, Mr. Chairman, I think it is safe to say that the productivity torch has been passed from the Water Resources Subcommittee to the Aviation Subcommittee.

The challenges before us are real and we're going to have to take a hard look at what we can do to prevent a looming gridlock of our nation's aviation infrastructure.

By 2015, one billion passengers will board planes domestically each year; whether the system can handle that depends on how money is invested in aviation safety and infrastructure today.

I am not a proponent of outsourcing anything—not jobs and definitely not safety. Yet, as recent data reveals, more and more of our nation's airline carriers are outsourcing their maintenance.

According to the Department of Transportation, from 1996 to 2005, the percentage of cost spent on outsourced maintenance jumped from thirty-seven to sixty-two percent.

As this committee well knows, the last six years have been financially difficult for the nation's airlines. Several carriers went into bankruptcy in order to cut costs, reduce benefits and eliminate employee pensions.

American Airlines, a North Texas-based carrier, avoided bankruptcy because its employees worked closely with its management to regain the company's financial health.

In order to reduce costs, some airlines have chosen to send their airplanes to foreign countries to have them repaired and maintained.

But American has taken a different path.

The members of the Transport Workers Union and American's maintenance management have changed the way they do business and have kept their maintenance work in-house - while improving efficiency and maintaining safety.

American also is doing maintenance work for other airlines. American's employees and its management should be commended for their efforts and for their decision to keep jobs in the U.S.

I hope that the FAA keeps a watchful eye on American's model of maintenance operations and also on the maintenance operations at all US airlines.

Mr. Chairman, it is my hope that as we continue to move forward in the reauthorization debate, the committee continues to give adequate attention to strengthening oversight of outsourced maintenance facilities.

I want to thank the witnesses that have come before us this morning, and look forward to their testimony on this matter.

Thank you Mr. Chairman, and I yield back the balance of my time.

STEVE KAGEN, M.D.
WISCONSIN
8TH DISTRICT

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OPENING STATEMENT
HONORABLE STEVE KAGEN, M.D.

Committee on Transportation and Infrastructure
Subcommittee on Aviation
Thursday March 29, 2007

"The Federal Aviation Administration's Oversight of Outsourced Air Carrier Maintenance"

Mr. Chairman, I am pleased to participate in today's hearing regarding the oversight of air carrier maintenance by the FAA, particularly with regard to maintenance performed by centers located outside of these United States. I am deeply concerned that the FAA finds it difficult to locate all of the repair centers located overseas, or has to this point neglected to try. Although the FAA has an impressive safety record, this fact alone will not excuse their admitted failures to inspect all the commercial carrier maintenance centers.

Twenty of the largest domestic airlines outsource over half of their maintenance duties, much of which are executed by non-licensed mechanics. This unfortunate fact represents a deficit of leadership and a lack of will. Standards of excellence and quality are meaningless without active and attentive oversight.

I look forward to listening to the testimony of these two panels. I trust they will share the reasons for FAA's failures to oversee carrier maintenance – here and abroad.

Thank you, Mr. Chairman.

T&I Subcommittee on Aviation
Oversight of Outsourced Air Carrier Maintenance
Statement of Rep. Doris Matsui
March 29, 2007

Thank you Chairman Costello and Ranking Member Petri for holding this important oversight hearing. And thank you to today's witnesses for providing testimony.

The American aviation industry has an outstanding safety record in recent years and I commend the FAA, its workers and the industry for it. But we can never make the system too safe. That is why we are having this hearing today.

One of the recent maintenance-related crashes was of a plane that took off from Mather airport, right outside my district seven years ago. Three people died as a result of this crash and this oversight will hopefully help to prevent similar accidents from occurring again.

I am particularly concerned about the proliferation of non-certified repair facilities. These facilities appear to represent a parallel system that does not receive the same type of oversight from the FAA as certified facilities. A recent CRS report noted that "contracted maintenance workers, many of whom work part-time at repair facilities alongside full-time regular employees, often are not required to obtain FAA certification, and the screening and selection processes for these workers has been described as minimal." This certainly raises serious concerns about the qualifications of some of the workers responsible for ensuring the safety of passengers.

Additionally, it does not appear that the FAA has a full understanding of the type of work these facilities are performing and how it might affect the safety of the nation's aircraft. This is troubling and I hope that today's hearing will serve to improve this situation.

I thank the witnesses for coming to testify today and look forward to receiving their perspective on this critical issue.

1

Statement of Rep. Harry Mitchell
House Transportation and Infrastructure Committee
Subcommittee on Aviation
3/29/07

--Thank you, Mr. Chairman.

--This is the fifth in our series of hearings on FAA reauthorization.

--When the series began I identified a number of issues of concern to me.

--Safety, of course, is the most important.

2

--According to the FAA, over the next 10 years, 70 percent of its air traffic controllers will become eligible to retire.

--We need to make sure the FAA has the resources it needs to recruit, train and maintain controllers to replace these retirees, and keep the flying public safe.

3

--I am also very concerned about reports of passengers being trapped on grounded planes for extended periods of time without access to food, water. In some cases passengers have been held in such conditions for more than seven hours .

--In my view this is not just a matter of comfort and convenience. It is a matter of safety, and needs to be addressed.

4

--Today, we will address another safety issue: oversight of outsourced air carrier maintenance.

--Increasingly, air carriers are relying on outside maintenance companies for long term maintenance including: airframe repairs, aging aircraft modifications and engine overhauls.

5

-- In 2003, the Department of Transportation's Inspector General found weaknesses in 86 percent of outsourced repair stations visited.

--I look forward to hearing from today's witnesses about what impact they feel this is having on safety.

-- I yield back the balance of my time.

OPENING STATEMENT OF
HONORABLE JAMES L. OBERSTAR, M.C.
BEFORE THE HOUSE AVIATION SUBCOMMITTEE
THE FEDERAL AVIATION ADMINISTRATION'S
OVERSIGHT OF AIR CARRIER OUTSOURCED MAINTENANCE
MARCH 29, 2007

- I want to thank Chairman Costello and Ranking Member Petri for calling today's hearing on *The Federal Aviation Administration's Oversight of Air Carrier Outsourced Maintenance.* In recent years, U.S. aviation has had a remarkable safety record. The rate of fatal airline accidents involving passengers is about 0.01 per 100,000 departures -- about 1 in every 10 million flights. This is laudable, especially in these tough economic times, with the airline losses at approximately $35 billion since the beginning of 2001.

- However, while we have made great strides in aviation safety in the last several years, our work is not yet finished. I have long been concerned about the systematic outsourcing of airline maintenance, which has contributed to the elimination of over 27,000 maintenance jobs at mainline carriers since 2001.

- Since September 11th, network airlines have looked to cut costs into all areas of their operations, including maintenance. Many of the airline industry's legacy carriers have closed their own maintenance bases and have increased their use of outside maintenance providers to perform heavy maintenance, including: airframe repairs, aging aircraft modifications, engine overhauls, and advanced avionics maintenance.

- Based on Bureau of Transportation Statistics (BTS) data, in 2005, major passenger air carriers spent $3.91 billion, or 42.2 percent of their $9.27 billion in maintenance spending on outside maintenance companies. In addition, in the first nine months of 2006, these carriers spent $3.19 billion, or 43.8 percent of their $7.28 billion in maintenance spending on outside maintenance companies.

- The Department of Transportation Inspector General (DOT IG) notes in its testimony that based on data from nine major air carriers that it has reviewed, the percentage of heavy maintenance that these carriers outsourced increased from 34 percent in 2003 to 67 percent in 2006, with approximately a third of that maintenance being outsourced to foreign repair stations.

- Air carriers' use of foreign repair stations is not new; however, I am concerned about the rate at which such work is currently being outsourced to such facilities. It is well known that many airlines have shifted a significant portion of their heavy aircraft maintenance to foreign facilities. Such heavy maintenance often includes a partial teardown of an aircraft at a cost of several hundred thousand dollars per aircraft, and utilizing several mechanics. These are good paying jobs that would otherwise be occupied by U.S. mechanics.

- In contrast, American Airlines has chosen to keep its heavy maintenance in-house. By working with the Transport Workers Union, American has developed a robust plan to not only keep its heavy maintenance work in house, but also to in-source repair work for both U.S. and foreign carriers. According to American Airlines, it has set a goal of $500 million in savings and increased revenue, which it met in February 2007. I look forward to hearing more about this successful partnership.

- The increased use of outside maintenance vendors creates several challenges for the FAA, not the least of which is ensuring that it has adequate resources and processes to oversee those organizations that are actually conducting the maintenance work. In 2003, the Department of Transportation Inspector General (DOT IG) identified several vulnerabilities in FAA's oversight of both domestic and foreign repair stations and suggested that the FAA move to a risk-based system to target limited inspector resources. However, I do not believe that a system based solely on analytical data replaces that value of hands-on inspection.

- In addition, the DOT IG found in a December 2005 audit that more scheduled airline maintenance work is being done at non-certificated repair facilities, and that FAA was unaware of the types of maintenance activities these facilities are providing airlines. The DOT IG has suggested that the FAA evaluate the air carrier's oversight of these facilities as well as collect data to determine whether it should limit the work that these facilities conduct. The DOT IG has made several recommendations to the FAA to improve its safety oversight of maintenance providers, and I look forward to hearing about the progress made in that regard.

- The DOT IG also noted in a June 2005 audit that the FAA is not keeping pace with the rapidly occurring changes in the aviation industry and stated that it is "important to maintain a safety inspector workforce that is sufficient to achieve its mission of safety oversight."

- According to the DOT IG, well over one-third of the FAA's inspector workforce will be eligible to retire by 2010. The FAA's FY 2008 budget request provides for

hiring an additional 177 inspectors over the next two years. However, the National Research Council (NRC) reports that the actual number of inspector slots needed is unknown because FAA lacks staffing standards for inspectors and that the FAA should develop a new staffing standard. I believe that this recommendation must be implemented without delay.

- Mr. Chairman, we must ensure that FAA has the resources and appropriate oversight systems in place to allow its inspector workforce to keep up with the changes in the aviation industry – the American traveling public deserves no less. I look forward to hearing from the witnesses.

Opening Statement
Congressman John T. Salazar
T&I Aviation Subcommittee Hearing
FAA's Oversight of Outsourced Air Carrier Maintenance
March 29, 2007

Thank you, Mr. Chairman.

I'd like to thank all of the panelists for being here today.

I'm told that Frontier Airlines in Denver does 100% of their airframe maintenance in-house.

However, I understand that most airlines, Frontier included, outsource their heavy equipment—like engines and wheels—maintenance.

We should all have real concerns about outsourcing to non-certified repair stations.

This committee is very focused on safety and any lack of oversight is troubling.

I'm interested in hearing more about the FAA's Air Transportation Oversight System, which I understand relies less on inspection and more on statistical trends.

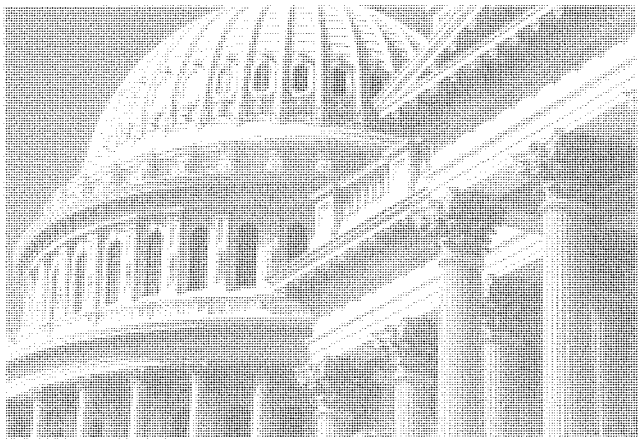
Contracting out airline maintenance without proper oversight can raise serious security issues.

I look forward to the testimony today and again, I thank the panel members for being here.

Thank you.

TESTIMONY

Oversight of Outsourced Maintenance



Statement of Basil J. Barimo
Vice President of Operations and Safety
Air Transport Association of America, Inc.
before the
Subcommittee on Aviation
of the
House Committee on Transportation and Infrastructure

March 29, 2007

AIR TRANSPORT ASSOCIATION

Introduction

The Air Transport Association of America, Inc. (ATA), the trade association of the principal U.S. passenger and cargo airlines,[1] appreciates the opportunity to submit these comments for the record on safety and other issues affecting the U.S. airline industry. ATA member airlines have a combined fleet of more than 4,000 airplanes and account for more than 90 percent of domestic passenger and cargo traffic carried annually by U.S. airlines.

Safety is the constant, overriding imperative in our members' activities. They understand their responsibilities and they act accordingly. The U.S. airline industry's stellar - and improving - safety record demonstrates that indisputable commitment.

Airlines Fuel our Nation's Economy

The U.S. airline industry is not simply an important sector of the national economy; its services fuel our entire economy. Air transportation is an indispensable element of America's infrastructure and our nation's economic well-being. Individuals, businesses and communities depend on the national air transportation system. U.S. airlines transport more than two million passengers on a typical day and directly employ 550,000 persons to do so; they provide just-in-time cargo services; they are the backbone of the travel and tourism industry; and airlines link communities throughout our nation and to the world.

Moreover, the airline industry is the foundation of the commercial aviation sector, which comprises airlines, airports, manufacturers and associated vendors. U.S. commercial aviation ultimately drives $1.2 trillion in U.S. economic activity and 11.4 million U.S. jobs. By any measure, the U.S. airline industry is a valuable national asset and its continued economic health should be a matter of national concern.

The Safest Airlines in the World

Despite the unprecedented travails of the U.S. airline industry throughout the first half of this decade, its safety record has continued to improve. Our commitment to safety, even in the face of unprecedented financial adversity, has been unflagging and will remain so.

Following $35 billion in losses from 2001 to 2005, 2006 was a much-improved year for the U.S. airline industry from an economic standpoint. Including the all-cargo

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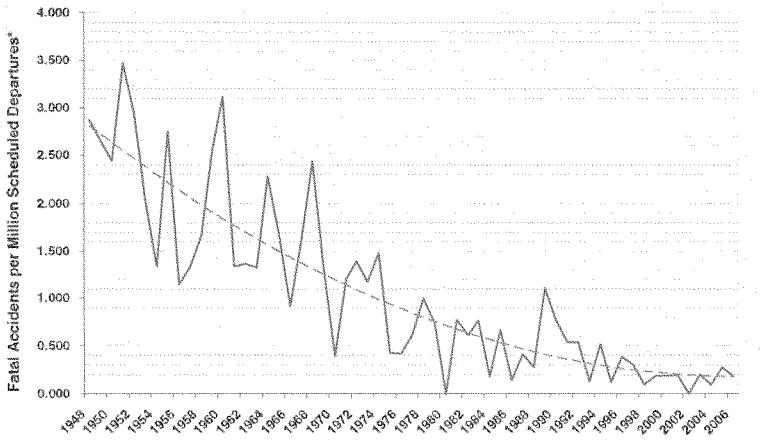
[1] ABX Air, Inc.; Alaska Airlines; Aloha Airlines; American Airlines; ASTAR Air Cargo; Atlas Air; Continental Airlines; Delta Air Lines; Evergreen International Airlines; Federal Express Corp.; Hawaiian Airlines; JetBlue Airways; Midwest Airlines; Northwest Airlines; Southwest Airlines; United Airlines; UPS Airlines; and US Airways.

sector, the Air Transport Association estimates that the industry will report earnings ranging from $2 billion to $3 billion.

While conditions have improved and the overall financial outlook is guardedly optimistic, debt levels remain high, leaving the airlines vulnerable to fuel spikes, recession or exogenous shocks (e.g., terrorism, pandemics, natural disasters), let alone ill-advised public policy decisions. The challenge we face is to achieve meaningful and sustainable profits, and to improve credit ratings to the point where airlines can weather normal economic turbulence while simultaneously investing in the future.

Amid Rising Departures, Safety Has Improved



* Scheduled passenger and cargo operations of U.S. air carriers operating under 14 CFR 121; NTSB accident rates exclude incidents resulting from illegal acts

Source: National Transportation Safety Board (NTSB)

Notwithstanding these financial challenges, airline safety has remained rock solid. NTSB figures show fewer accidents in 2006 compared to 2005 for all segments of civil aviation, with Part 121 carriers continuing to have the lowest accident rates. In 2006, Part 121 carriers transported 750 million passengers more than eight billion miles and logged 19 million flight hours on 11.4 million flights. Tragically, there were two fatal accidents in 2006 which claimed 50 lives. This yields an accident rate of 0.18 per 100,000 departures, down 30 percent from 2005. For comparison, the average rate for the five-year period of 2002-2006 was 0.36, and the five years prior to that saw a rate of 0.45 accidents per 100,000 departures. The trend continues in 2007 and, without question scheduled air service is incredibly safe, getting safer, and maintenance certainly plays a role in that remarkable achievement.

The chart above clearly depicts the remarkable improvements in airline safety that have occurred over time. U.S. air carrier accidents are rare and random. A prominent

reason for this is the extraordinary, long-standing collaboration among the FAA, NTSB, NASA, manufacturers, airline employees and their unions, airlines themselves, and of course, maintenance, repair and overhaul service providers (MROs). That collaborative relationship is firmly entrenched in the aviation community; indeed, it has strengthened over the years. Programs such as the joint government-industry Commercial Aviation Safety Team, Flight Operational Quality Assurance Programs, Aviation Safety Action Programs, and Line Operations Safety Programs are important, tangible results of that ongoing collaboration.

These collaborative safety-improvement efforts have created a safety management system that is data driven and is based on risk analysis. That undistracted focus on data enables safety-related trends to be identified, often before they emerge as problems, and properly resolved. This objective and measurable approach means that we apply our resources where the needs actually are, not where surmise or unverified assumptions might take us.

We can and do spot these trends, whether they are operational or maintenance related. With respect to the long-standing practice in the airline industry to use the expertise of regulated contractors to perform maintenance services, the data quite clearly do not tell us that safety suffers.

Maintenance Contracting is Not a New Concept

In simple terms, contract maintenance is the process explicitly allowed by FAR 121.363(b) [2] where airlines hire experts to perform maintenance tasks. The type of maintenance involved can range from minor servicing to major overhaul of components, engines or the airframe itself.

Airlines exist to transport people and goods. In order to survive they must do it safely, but to thrive in a fiercely competitive, global environment they must also do it efficiently. Safety need not be comprised because of considerations of efficiency; in fact, it can be significantly advanced in an environment where a focus on efficiency spurs a willingness to re-examine time-worn practices and encourage innovation that embraces newer - and improved - practices.

The maintenance of commercial airliners is a complex, capital-intensive business requiring specialized equipment and facilities along with highly-skilled personnel. One implication of this is that using a maintenance facility or facilities with specialized

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[2] FAR 121.363 Responsibility for Airworthiness states that:

(a) Each certificate holder is primarily responsible for-

(1) The airworthiness of its aircraft, including airframes, aircraft engines, propellers, appliances, and parts thereof; and

(2) The performance of the maintenance, preventive maintenance, and alteration of its aircraft, including airframes, aircraft engines, propellers, appliances, emergency equipment, and parts thereof, in accordance with its manual and the regulations of this chapter.

(b) A certificate holder may make arrangements with another person for the performance of any maintenance, preventive maintenance, or alterations. However, this does not relieve the certificate holder of the responsibility specified in paragraph (a) of this section.

skills is likely to be considered. Complexity inevitably will lead a carrier to examine dividing maintenance functions; some airlines will elect to do so, while others will not. Either way, examining alternative sources in this type of environment is entirely reasonable.

Moreover, current airline business models demand continual scrutiny of costs, commonly with a bias to shed non-core activities. In the case of maintenance, there are many incentives to utilize contract maintenance providers:

- Access to specialized repair facilities when and where they are needed
- Avoidance of major capital investments (equipment and facilities)
- Increased utilization of existing facilities
- Improved employee focus on core airline activities
- Optimization of flight schedules around customer demand instead of maintenance infrastructure availability
- Exceptional quality at a reduced cost

As expected, the level of contract maintenance utilized by individual airlines varies significantly based on factors such as the type(s) of aircraft used, geographic region of operation, business philosophy, labor agreement limitations, internal cost structure, and commercial relationships with airframe, engine and component manufacturers. Without exception, all airlines rely to some extent on contract maintenance providers. This is a point that should not be obscured: contract maintenance is a commonly accepted practice in this industry. The extent of it may vary from airline to airline but there is nothing out of the ordinary about its use.

Airlines are by no means unique in their reliance on contract maintenance. In fact, many industries rely heavily on contract maintenance providers for a broad range of services. Trains, buses and cruise ships are predominantly maintained by companies other than those who operate them. The United States Department of Defense contracts with private companies for the maintenance of aircraft, in many cases the same companies utilized by commercial airlines. As this widespread pattern of relying on contract maintenance suggests, operators with very demanding and sophisticated needs routinely and successfully outsource maintenance.

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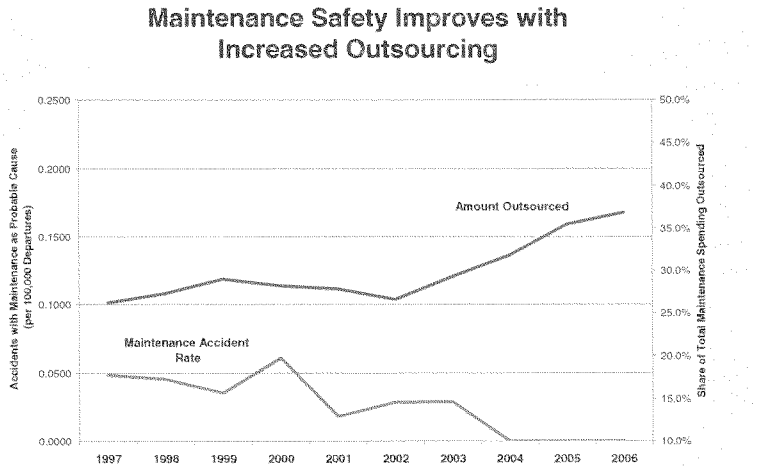
Statistics Don't Lie

Commercial airlines have utilized contract maintenance for decades. The industry's reliance on contract maintenance providers increased since 2001 as airlines restructured their business models. The implications of this change have been misunderstood. It does not signal a diminution in safety or a "slippery slope." Critics of contract maintenance argue that 'If airlines don't perform all of the maintenance themselves, then they can't be safe.' Independent data from the National Transportation Safety Board (NTSB) proves them wrong.

Based on data compiled by the NTSB, maintenance-related accidents make up roughly eight percent of all Part 121 accidents over the last ten years.



The chart above clearly illustrates that U. S. airlines' use of contract maintenance has not been a detriment to safety. In fact, maintenance-related safety performance is the best its ever been. It is simply not reasonable, based on the data available, to consider the practice of maintenance contracting unsafe.

Effective Oversight is the Key

Air carriers understand that aircraft maintenance is vital to continued operational safety. Likewise, safe operations are elemental to compliance with regulatory requirements and ultimately to an airline's existence. Over time, the industry has developed a comprehensive, multilayered approach to oversight that ensures the

highest levels of quality and safety regardless of who does the work or where that work is performed. This point cannot be overstated - safety is what counts, first and foremost.

Initial levels of protection are contained in the Federal Aviation Administration (FAA) regulations, which provide a basic framework to ensure competence among those certificated to perform aircraft maintenance.[3] Prior to granting certification, the FAA confirms that an entity or individual has fulfilled specific regulatory requirements.

Part of this approval process involves the issuance of Operations Specifications (OpSpecs) by the FAA. Air carrier OpSpecs contain a specific section to address aircraft maintenance, and repair station OpSpecs delineate the ratings and limitations of the maintenance that can be performed. In FAA Order 8300.10, Volume 2, Chapter 84, it is stated, in part, that:

> OpSpecs transform the general terms of applicable regulations into an understandable legal document tailored to the specific needs of an individual certificate holder. OpSpecs are as legally binding as the regulations... *(Citations omitted)*

Once certificated, air carriers and repair stations are inspected and monitored by the FAA to verify their continued conformity with the rules. This ongoing surveillance process can be viewed as the second layer of safety.

Additionally, certificated air carriers acquire the non-delegable responsibility for the airworthiness of the aircraft in their fleet.[4] The backbone of any air carrier's airworthiness is its Continuing Analysis and Surveillance System (CASS). CASS is a quality-assurance system required by FAR 121.373 consisting of surveillance, controls, analysis, corrective action and follow-up. Together, these functions form a closed loop system that allows carriers to monitor the quality of their maintenance. In a structured and methodical manner, the CASS provides carriers with the necessary information to enhance their maintenance programs.

Aircraft maintenance is the primary ingredient of airworthiness and FAA regulations contain detailed maintenance program and manual requirements,[5] which validate the related air-carrier processes and procedures. When work is sent to a repair station, it

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[3] See, for example, 14 CFR parts 121, 145 and 65.

[4] See 14 CFR § 121.363 which provides that:

> (a) Each certificate holder is primarily responsible for—
>
> (1) The airworthiness of its aircraft, including airframes, aircraft engines, propellers, appliances, and parts thereof; and
>
> (2) The performance of the maintenance, preventive maintenance, and alteration of its aircraft, including airframes, aircraft engines, propellers, appliances, emergency equipment, and parts thereof, in accordance with its manual and the regulations of this chapter.
>
> (b) A certificate holder may make arrangements with another person for the performance of any maintenance, preventive maintenance, or alterations. However, this does not relieve the certificate holder of the responsibility specified in paragraph (a) of this section. *(Emphasis added.)*

[5] See 14 CFR §§ 121.365; 121.367; 121.369.

must follow the maintenance program of the air carrier with whom it has contracted.[6] Combined, these duties comprise the third level of protection.

Apart from external FAA surveillance, and in line with their ultimate responsibility for airworthiness, airlines conduct in-depth initial and frequent follow-up maintenance vendor audits. As a rule, these audits are performed by air carrier quality, compliance or inspection department employees, but oftentimes may include outside counsel and/or consulting firms who specialize in air carrier maintenance. These audits create a robust fourth level of oversight.

Industry protocol for conducting and substantiating independent audits of air carriers and repair stations is established by the Coordinating Agency for Supplier Evaluation (C.A.S.E.). In addition, guidance materials and inspection checklists created for FAA inspectors are frequently used.

Typically, preliminary investigation of a potential repair station vendor by an air carrier would include:

- Review of repair station performance and quality metrics
- Feedback from past and current repair station customers
- Verification of repair station capabilities (OpSpecs)
- Review of FAA mandated Repair Station Manual, Quality Manual and Training Manual

If this repair station examination is satisfactory, it is normally followed by an on-site visit to verify compliance with applicable regulations, C.A.S.E. requirements and adherence to the repair station's own manuals. Some areas of investigation include:

- Validation of FAA certificates held by persons directly in charge of maintenance and/or those who perform maintenance
- Inspection of training records of inspectors, technicians and supervisors
- Examination of procedures for technical data, documentation and maintenance record control
- Examination of procedures for work processing, disposal of scrap parts, tool calibration and handling material with a limited shelf life
- Review of repair station internal inspection and quality programs
- Review of previous inspection program results and corrective actions

If the repair station is selected to perform maintenance for the air carrier, similar on-site audits would be conducted on a regular basis.

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[6] See 14 CFR § 145.205 which states, in part, that:

> (a) A certificated repair station that performs maintenance, preventive maintenance, or alterations for an air carrier or commercial operator that has a continuous airworthiness maintenance program under part 121 or part 135 must follow the air carrier's or commercial operator's program and applicable sections of its maintenance manual. *(Emphasis added.)*

Finally, a fifth layer of oversight is provided by on-site air carrier representatives. These individuals monitor the day-to-day operations and coordinate the activities of the repair station related to the air carrier's equipment. Final inspections and, ultimately, air carrier approval for service are also normally accomplished by these on-site airline personnel.

In essence, there are two separate but mutually reinforcing oversight schemes, one regulatory and one independent, both effective in ensuring satisfaction of applicable FAA regulations. However, air carriers have further incentive to provide adequate oversight through the potential negative impact - real or perceived - of safety related issues. Without question, air carriers continue to make safety their top priority. Safety is ingrained in our culture.

Global Competition, Local Politics

U.S. airlines continually lead the world in virtually every performance metric, including safety. Their ability to compete effectively on a global scale is due, at least in part, to their ability to evolve with changing market conditions. Airlines across the United States and around the world have formed alliances that extend beyond their networks to many aspects of airline operations, including maintenance. These complex relationships involve airlines, aircraft manufacturers and a host of service providers.

The loss of some 130,000 airline jobs since 9/11 has been well documented. As airlines downsized to meet a reduced demand for air travel, it became even more difficult for them to efficiently utilize their exhaustive maintenance infrastructure. Fleet reductions targeted older, maintenance-intensive aircraft, leaving too few aircraft being maintained at too many facilities, and airlines looked to contract maintenance providers as a way to secure quality maintenance while shedding the expensive infrastructure costs. Airlines were also forced to renegotiate labor agreements in an effort to reduce costs, bolster productivity and increase asset utilization. Scope clauses were modified to allow air carriers to more broadly leverage contract maintenance – a painful move for affected employees, but ultimately essential to the airline's survival. It is this impact on employees, particularly maintenance employees, that draws attention to the issue of maintenance contracting.

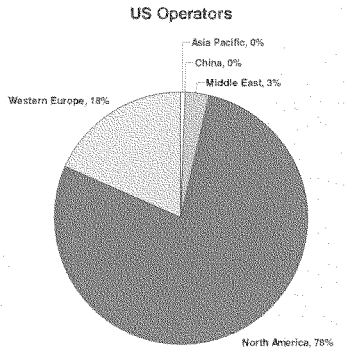
The debate surrounding the issue of contract maintenance is best understood when broken down into several key points:

- Most statistics relating to the amount of maintenance contracted are based on the amount an airline spends. The amount 'outsourced' is derived by dividing the amount spent on contract maintenance by the total maintenance cost for the airline. These include all costs associated with the maintenance of airframes, engines and components.

- Engine maintenance is much more expensive per event than airframe maintenance, due largely to the replacement of expensive parts within the engine. The fact that virtually all engine maintenance is performed outside the airline can skew the numbers.

- Even the largest engines are readily transportable enabling access to repair centers around the world. Engine manufacturers such as GE, Pratt & Whitney, and Rolls-Royce rely on their subsidiaries worldwide for maintenance of their products although, as shown below, most of that work is performed domestically. Large U.S. airline MROs also maintain engines for foreign and domestic customers.

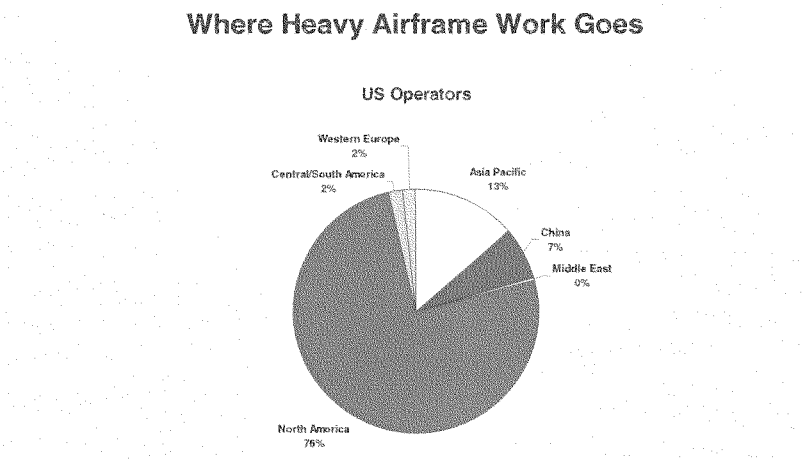
Where Engine Work Goes



- ATA-member airlines continue to perform the majority of airframe checks internally.[7]

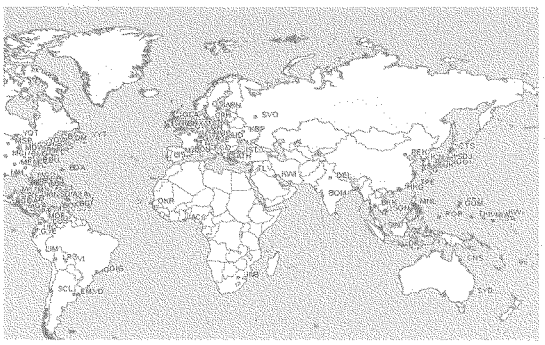
[7] According to a 2005 survey of ATA member airlines, 70 percent of all heavy maintenance checks ('C' or higher) were performed internally by direct airline personnel.

- The majority of narrow-body aircraft maintenance work contracted out in the past few years has stayed within North America. Maintenance, repair and overhaul companies (MROs) in Washington, North Carolina, Florida, New York, Georgia, Tennessee, Arizona, Texas and Indiana are among those now performing the work. Large airlines with available capacity have also captured a portion, and the remainder is performed by experts in Central/South America and Canada.



- Heavy airframe maintenance performed by MROs outside of North America is limited primarily to wide-body aircraft. Regularly scheduled operations enable these long-range aircraft to routinely transit locations abroad that offer best-in-class maintenance for these aircraft types. Asia and Europe do much of this work.

Easy Access to Global MROs



Conclusion

U.S. airlines have logged an exceptional safety record while steadily expanding their use of contract maintenance. So while critics charge that maintenance contracting undermines safety, independent government figures simply don't support that conclusion. When considered objectively, it is evident that the practice helps U.S. airlines compete effectively with their global counterparts. The ability to optimize maintenance practices to produce safe, reliable, customer-worthy aircraft at a competitive cost is essential to airlines' long-term health. Healthy airlines grow, adding service to new destinations and increasing service to existing ones. That growth requires new aircraft, creating new jobs within the airline for pilots, flight attendants, ramp and customer service personnel, and a wide range of support staff. Beyond the airline, the impact grows exponentially and is felt nationwide by manufacturers, ATC service providers, airports, caterers, fuelers – the list goes on and on. Contract maintenance has played and continues to play an important role in improving the health of the U.S. airline industry - in a way that is entirely consistent with our fundamental commitment to safety. It is imperative that this fact not be overshadowed by the movement of jobs from one state or district to another.

FOUNDED 1977

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STATEMENT OF TOM BRANTLEY
PRESIDENT
PROFESSIONAL AIRWAYS SYSTEMS SPECIALISTS (PASS)
AFL-CIO

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

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

MARCH 29, 2007

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

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

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

Airworthiness Inspectors

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

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

[1] As of February 2007, the FAA lists the number of Flight Standards inspectors as 3,593. This figure, however, includes first line field and office managers; the PASS figure only includes inspectors who actually perform inspection functions in the field.
[2] Department of Transportation Inspector General, *Safety Oversight of an Air Carrier Industry in Transition*, AV-2005-062 (Washington, D.C.: June 3, 2005), p. 8.
[3] Department of Transportation Inspector General, *Observations on FAA's Oversight of Aviation Safety*, CC-2006-074 (Washington, D.C.: September 20, 2006), p. 4.

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

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

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

Inadequate Inspector Staffing

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

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

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

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

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

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

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

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

Insufficient Funding

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

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

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

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

- According to one inspector in Texas, $2,400 was requested for four inspectors to perform an inspection of an outsourced maintenance provider that has consistently had problems conforming to regulations. Less than half the money was eventually allotted to the inspection, and only two inspectors were assigned to the repair station, resulting in half the oversight that was originally intended.

- One inspector working at a CMO reveals that the CMO is often forced to use funds set aside for the aging aircraft program[6] to examine an entire repair station.

- Even obtaining funding for travel for short distances proves challenging for inspectors. In one example, it took three months for inspectors in Lincoln, Neb., to gain approval to travel to the western part of the state to perform surveillance activities. The excuse these inspectors were given for the delay was a lack of funding.

- If funding for travel to domestic repair stations is difficult, obtaining the funds to visit a foreign repair station is even more complicated. For example:
  - A recent trip to a repair station in Germany was approved and then cancelled at the last minute when the inspector was told that there was not enough funding to perform the inspection.
  - An inspector responsible for examining outsourced maintenance work performed at repair stations in Singapore, China and Ireland is only able to get to these repair stations *every four or five years*.

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

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

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

Implementation of the Air Transportation Oversight System (ATOS)

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

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

- The transition to ATOS without an adequate number of inspectors is leading to an increasing reliance on statistical analysis rather than a combination of visual inspections and statistical analysis to catch safety problems. As a result, the FAA is reducing the number of actual inspections of all repair stations and airline oversight in general, jeopardizing the margin of safety.

- According to inspectors, the fundamental flaw of ATOS is that it is taking the intuition and experience of inspectors out of the process, inspectors who are trained to hear and see things that are not quantifiable through a database. In many cases, inspectors are spending time analyzing data rather than performing the actual inspection work. Nick Sabatini, the FAA's associate administrator for Aviation Safety, reinforced this concept for PASS in a recent meeting when he informed us that taking the inspector's intuition and experience out of the process was intentional.

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

- Since ATOS is a risk-based data-driven system, the quality of the data is obviously extremely important. FAA inspectors are responsible for entering data into the ATOS database based on their inspections. However, due to insufficient inspector staffing and a lack of funding for travel, inspectors are not able to get to the repair stations as often as needed and are therefore not able to enter quality information into the system.

- There is an option in ATOS where, if the resources cannot be provided to complete the work, the inspection is labeled as "Resources Not Available." This was built into ATOS as a method of identifying resource shortfalls that prevent proper oversight. However, inspectors in the field tell us that instead of letting ATOS generate a list of what needs to be done based on risk and then requesting funding, the system's data is being manipulated to fit the budget. Inspectors say that managers are often hesitant to use the "Resources Not Available" option since it implies a need for additional funding and may reflect negatively on their performance.

Problems With Oversight Performed at Foreign Repair Stations

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

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

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

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

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

Use of Non-Certificated Repair Facilities

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

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

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

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

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

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

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

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

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

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

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[11] Department of Transportation Inspector General, *Air Carriers' Use of Non-Certificated Repair Facilities*, AV-2006-031 (Washington, D.C.: December 15, 2005), p. 6.
[12] Id., pp. 1 – 2.

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

Conclusion

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

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

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

Testimony of

DAVID CAMPBELL
VICE PRESIDENT FOR BASE MAINTENANCE
AT ALLIANCE FORT WORTH AND KANSAS CITY
AMERICAN AIRLINES

BEFORE THE SUBCOMMITTEE ON AVIATION
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
UNITED STATES HOUSE OF REPRESENTATIVES

MARCH 29, 2007

Good morning and thank you for inviting American Airlines to participate in today's hearing on outsourced air carrier maintenance. We welcome the Committee's attention to this important subject.

My name is David Campbell and I am the Vice President responsible for two of the three American Airlines maintenance bases – at Alliance Fort Worth, Texas and in Kansas City, Missouri. Our third maintenance base is located in Tulsa, Oklahoma.

I cannot emphasize strongly enough that safety is our number one priority at American. We welcome the diligent and continual oversight of the FAA and believe it is an important component of our commitment to safety. Working with our employees who are members of the Transport Workers Union and with the FAA, we strive to continually improve our safety functions and we do so not just to meet, but to exceed FAA standards.

I will explain how we work with the FAA on a daily basis in a moment. But first I would like to take a moment to describe how we have taken a substantially different path on maintenance than others in the airline industry.

While the industry trend is increasingly to outsource maintenance work, American has moved in the other direction. We perform over 90 percent of all maintenance work and 100 percent of heavy maintenance work in the United States with American Airlines employees at our facilities or maintenance bases. We have approximately 2,750 maintenance employees at the Alliance and Kansas City bases and another 7,000 employees at our base in Tulsa. They repair and maintain our fleet of 700 large jets as well as aircraft for dozens of other carriers.

As many of you know, American is the only network air carrier in existence before deregulation that has been able to avoid bankruptcy. Through a combination of employee cooperation and productivity improvements numbering in the thousands, we have been able to restore the company to a position of financial stability. And while we still have a substantial amount of debt and need sustained profitability, we have made vast improvements in our balance sheet and our economic future.

There is no better example of why we have been able to achieve this turnaround than the partnership that we have formed with the Transport Workers Union to transform our maintenance business model. Over the last three years, we have focused on turning our maintenance and engineering organization from a cost center to a profit center. In so doing, we have been able to maintain our repair and overhaul work in the United States and, most important, keep our talented and experienced employees.

Through an intense and rigorous collaborative process, American and the Transport Workers implemented an approach to maintenance that we call our Continuous Improvement Process. Using it, we have been able to reduce costs, gain efficiencies and optimize our operations and productivity, while maintaining the highest standards of safety and reliability.

We have also been able to acquire and conduct maintenance work for other domestic and international airlines despite the fact that American offers higher salaries and better benefits to its employees than virtually any non-airline vendor. In other words, while many of our competitors outsource to lower labor cost regions of the world, we actually have insourced work from those regions. What we provide our customers is a level of quality that is second to none and assurance that we will begin and end our maintenance as promised so that our customers' airplanes will be out of service for the least possible time.

American has set an aggressive goal of obtaining an additional $175 million in third-party revenue in 2007. From March 2005 until February of this year, a joint team from American's Maintenance base in Tulsa generated $501 million in value creation. In February 2006, TWU Local 530 and Kansas City base management set a goal of $150 million to turn the base into a profit center by the end of 2007 and at Alliance Fort Worth Maintenance Base a joint team of management and TWU leaders agreed upon a "breakthrough goal" to generate $400 million in combined revenue and cost savings by the end of 2008.

The overall vision for American's maintenance organization is to become a world-class Maintenance Repair and Overhaul operation that provides value to our people, customers, and owners.

A prime example of how this is working is our collaboration with our employees in Tulsa to improve on the time it takes to complete a major airframe overhaul, or known as a heavy C check, of our MD-80 aircraft, which is the largest fleet in our system. By our front line employees and union leaders working together with our management team, the Tulsa facility developed the concept of the Staggered Pulse line, which involves four aircraft in an assembly line process to gain substantial efficiencies in manpower utilization, equipment and tooling.

C checks are the most extensive maintenance overhaul that our MD-80s go through. They take place after every 12,600 hours of flight time or generally every 5 to 6 years. The Pulse concept allows employees to specialize and sequence their work with maximum efficiency. As a result we have reduced the MD-80 turn time from 21 days to just under 13 days. This efficiency has enabled more than 300 employees who had been dedicated to MD-80 maintenance to focus on other American and/or third-party work.

At Alliance, our mechanics created an innovative method for engine overhaul. Rather than working on engines horizontally, they designed a method, using a hydraulic lift, to hold the engine vertically so they could have far better access. In so doing, we significantly reduced repair times and created a safer working environment.

Now I want to turn to an explanation of our relationship with the FAA. Title 49, United States Code Section 44701 (a) 5 and (c) states that it is "the duty of an air carrier to provide service with the highest possible degree of safety in the public interest." To ensure that we meet our obligation and standards we work very closely with representatives of the FAA. There are 37 full-time inspectors assigned to American. Others are available if needed.

Every morning at 8:15 a.m., a safety call is held with the three principal inspectors of the FAA assigned to American. Participants include representatives of our departments of Maintenance and Engineering, Flight, and Safety, Security and Environment. On this call, daily safety, mechanical and other issues are discussed and items are brought to the FAA's attention.

These same departments participate in a weekly call that is intended to address any longer-term concerns that the FAA may have and to bring the agency up to date about any issues that we believe they should know about.

Quarterly Safety Risk Management reviews are also undertaken in which we work closely with the FAA's Principal Operations Inspector, the Principal Maintenance Inspector, the Principal Avionics Inspector and their staffs. Periodically there are meetings of the AA/FAA Safety Executives Roundtable, which includes senior AA executives and the Principal Inspectors.

The FAA inspectors who are responsible for American's maintenance bases are dispatched as needed from the agency's Dallas/Fort Worth Airport Certification Management Office. FAA inspectors will often arrive at our maintenance bases – or airport hangers – unannounced to conduct inspections. We make it clear to our employees that when on our facilities, the FAA inspectors may talk with whomever they wish and review all records and logs without interference.

Simply put, we see and talk with FAA inspectors every day. Moreover, we have entered into a Memorandum of Understanding with the FAA on a Safety Risk Management Program that allows records and reports to be shared to enhance oversight of the carrier by identifying risks and mitigating hazards.

Inspections, unannounced reviews and oversight by the FAA are an integral part of our continuous improvement process. We welcome them. They provide ongoing feedback to make sure that that the work we do is in compliance with the Federal Air Regulations and with leading safety and operational practices.

We believe that rigorous FAA oversight should be a critical part of any maintenance program, regardless of where the maintenance is being performed and by whom.

Thank you and I'll be glad to answer any of your questions.

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Contract Maintenance:
The Critical Role of Repair Stations in Maintaining the Safety and Strength of the U.S. Aviation Industry

Testimony of Marshall S. Filler
Managing Director & General Counsel,
Aeronautical Repair Station Association (ARSA)
Before the House Subcommittee on Aviation

March 29, 2007

Chairman Costello, Ranking Member Petri, and members of the Subcommittee, thank you for inviting me to testify this morning about the excellent work America's contract aviation maintenance companies are doing to ensure the safety of the traveling public while helping air carriers improve their bottom lines.

My name is Marshall Filler and I am the Managing Director & General Counsel of the Aeronautical Repair Station Association (ARSA). ARSA is a 670 member strong international trade association with a distinguished 22-year record of educating and representing certificated aviation maintenance facilities before the U.S. Congress, the Federal Aviation Administration (FAA), the European Aviation Safety Agency (EASA), and other civil aviation authorities (CAA).

ARSA's primary members are companies holding repair station certificates issued by the FAA under Part 145 of the Federal Aviation Regulations (FARs). These certificates are our industry's "license to do business." They authorize repair stations to perform maintenance and alterations on civil aviation articles, including aircraft, engines, and propellers, and on the components installed on these products. These repair stations perform maintenance for airlines and general aviation owners and operators.

In recent years, the profile of the contract maintenance industry has increased dramatically. We welcome the opportunity to discuss the important role our members play in the aviation industry here and abroad, and appreciate the opportunity to correct any misconceptions about this longstanding and safe practice.

Contract maintenance is a long-standing part of the civil aviation system.
The contract maintenance work performed by ARSA members is nothing new. Since the early twentieth century, our industry has consistently provided dependable, expert maintenance to the commercial and general aviation sectors.

Standards for repair station operations have been set since the enactment of the Civil Aeronautics Act of 1938. Part 145 continues to set stringent standards, ensuring that certificated repair stations meet the same safety criteria as airlines' in-house maintenance organizations. Although most of the recent media attention has focused on

maintenance performed for air carriers, contract maintenance also plays a critical role in supporting the approximately 200,000 general aviation aircraft registered in the U.S. Indeed, for decades repair stations have served as the primary source of maintenance for the general aviation sector. This is because general aviation operators, unlike air carriers, are not authorized to perform maintenance in their own right.

In recent years, airlines have increased their use of outside maintenance contractors to reduce costs, while maintaining the highest safety standards. Over the past decade, network air carriers have increased contract maintenance from 37 percent of their total maintenance expenses to 53 percent.[1] Perhaps that number is higher today than it was when the DOT Inspector General released its report; nevertheless, a safe and proven practice employed one-third of the time does not become unsafe merely because it is used more frequently.

Repair stations are a critical part of the U.S. economy.
The growing contract maintenance industry is a source of stable, good paying jobs for skilled American workers. Currently, there are over 4,000 repair stations in the U.S., employing over 195,000 people in all fifty states (see Appendix A). In recent years, our industry has absorbed many employees laid off by struggling air carriers. In 1994, the Indianapolis Airport Authority (IAA) leased the Indianapolis Maintenance Center (IMC) to United Airlines, Inc. In 2003, after filing for Chapter 11 bankruptcy protection, United vacated the state-of-the-art maintenance facility. Less than a year later, AAR Aircraft Services, Inc. entered into a 10-year lease agreement with the IAA for some of the vacated space and later received a repair station certificate for that location from the FAA. AAR's investment allowed the IMC to reopen and gave hundreds of aviation maintenance workers the opportunity to work for a financially stable company. Many of our members, particularly those who perform contracted heavy aircraft maintenance, employ former airline mechanics at their repair stations.

Indeed, the practice of contracting is not limited to maintenance. Flight training facilities, fueling services, and aerospace manufacturing are just a few of the activities contracted by the industry. Like airlines that oversee contract maintenance, aircraft manufacturers maintain strict oversight of their suppliers' production operations, since they retain regulatory responsibility for the final product. In addition, as with repair stations that have their own FAA certification, some suppliers to aircraft manufacturers obtain independent production approvals from the FAA, making them independently responsible under the regulations for the work they perform. This is similar to what occurs in contract maintenance.

Increases in contract maintenance have paralleled increases in safety.
The increased use of contract maintenance by airlines coincides with the best safety record in the history of America's commercial aviation industry. Between 1994 and 2004, the use of repair stations to perform maintenance for "legacy" airlines increased

[1] Department of Transportation Office of Inspector General, Rep. No. AV-2005-062, *Safety Oversight of an Air Carrier Industry in Transition,* at 1 (June 3, 2005).

from one-third to over half of all airline maintenance.[2] During that same period, the U.S. and worldwide fatal accident rate declined.[3] This trend is continuing; earlier this month the National Transportation Safety Board (NTSB) released its annual statistics showing continued reduction in civil aviation accidents in the U.S.[4]

These trends suggest that highly-qualified and specialized repair stations servicing commercial aviation aircraft and related components are an integral part of maintaining the remarkable and exemplary safety record.

Although the type of work may differ, quality does not.
To operate in the civil aviation maintenance industry, certificated repair stations must demonstrate to the FAA, or other NAAs if applicable, that they possess the housing, facilities, equipment, personnel, technical data, and quality control systems necessary to perform maintenance in an airworthy manner. Based upon satisfactory showings in these areas, a repair station is rated to perform certain types of maintenance. Not all repair stations look alike and their capabilities vary significantly. Some provide line maintenance – the routine, day-to-day work necessary to keep an airline's fleet operating safely. Some perform substantial maintenance, which includes more comprehensive inspection and repairs on airframes and overhauls of aircraft engines. Other repair stations offer specialized services for their customers such as welding, heat treating, and coating on a variety of aircraft parts. However, the vast majority of repair stations perform maintenance on components. Component maintenance usually occurs off the aircraft, typically away from an airport in industrial parks and similar facilities.

Certificated repair stations include both manufacturers of civil aviation articles who service their own equipment and independent organizations with the technical, engineering and management capabilities necessary to thrive in an increasingly complex aviation industry. Many of our members are second and third generation family-owned, small businesses. Significantly, many air carriers are also certificated under Part 145 and are aggressively pursuing contract maintenance opportunities of their own.

The skills and technology required to maintain civil aviation products often call for an increased level of sophistication. To meet this demand, contract maintenance companies have developed highly-specialized facilities. Repair stations, like medical specialists, often seek to strengthen their core competencies by specializing in a particular line or type of product. This allows them to develop a high level of proficiency in performing certain repairs.

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[2] Department of Transportation Office of Inspector General, Rep. No. AV-2005-062, *Safety Oversight of an Air Carrier Industry in Transition*, at 1 (June 3, 2005).
[3] Harro Ranter, The Aviation Safety Network, *Airliner Accident Statistics 2004: Statistical summary of fatal multi-engine airliner accidents in 2004*, at 7 (January 1, 2005).
[4] National Transportation Safety Board, March 13, 2007 press release, "Annual Statistics Show Continued Improvement in Aviation Safety."

Repair stations offer cost savings, reliability, and specialization to customers. Beyond the value of specialized expertise, repair stations have consistently offered cost-savings to their airline and general aviation customers. The ability to perform high quality, reliable work in a timely manner and at a lower cost has allowed repair stations to thrive, even in an economic climate that threatens other sectors of the aviation industry.

Competitive bidding in contract maintenance requires repair stations to carefully control their costs. To successfully compete for and retain business, repair stations must find efficiencies and savings that are often unavailable to air carrier maintenance organizations. Without contract maintenance, an airline would have to invest capital in equipment and personnel for tasks it may not undertake as frequently or efficiently as a repair station specializing in that particular type of work.

In addition, many large airlines have found it difficult to control their labor costs. Repair stations, particularly small businesses, do not face the same demands on their resources. While employees at repair stations may not be compensated at the same levels as their unionized airline colleagues, contract maintenance workers enjoy other benefits, including the prospect of stable employment in a growing industry and the ability to work for a large aerospace company or a small, family-owned business. Their decision to accept lower pay in some cases in no way reflects the value of their contributions or the quality of their work. Indeed, the technicians at repair stations possess the training and skills necessary to ensure the highest level of safety and regulatory compliance.

Despite limited FAA resources, the industry ensures safety.
Aviation safety does not begin and end with the FAA or any other regulatory body. Government inspectors will never be able to oversee each mechanic at every facility all the time. The industry has the ultimate obligation to ensure that the civil aviation system is safe. All evidence suggests that it is fulfilling that responsibility despite the FAA's limited oversight resources.

In reports published in 2003 and 2005, the Office of the Inspector General of the Department of Transportation (DOT IG) expressed concerns about the FAA's oversight of the contract maintenance industry stating that the agency's oversight is currently insufficient for the amount of work independent repair stations perform for airlines.[5] The FAA has responded to these findings by introducing a risk-based inspection program that identifies those repair stations doing the most work for airlines and monitoring their operations more closely. ARSA supports efforts to better utilize FAA resources to ensure the continued quality of contract maintenance and to demonstrate to policymakers and the public that our aviation system remains safe.

[5] *See*, Department of Transportation Office of Inspector General, Rep. No. AV-2003-047, *Review of Air Carriers' Use of Aircraft Repair Stations*, at 1 (July 8, 2003); Department of Transportation Office of Inspector General, Rep. No. AV-2005-062, *Safety Oversight of an Air Carrier Industry in Transition*, at 1 (June 3, 2005).

We also note that despite the IG's observations, repair stations are subject to a tremendous amount of oversight by regulators, their customers, and other entities as shown in a 2005 ARSA member survey (Appendix B). A more recent membership survey conducted earlier this month is summarized in Appendix C. The findings from this survey reaffirmed past survey results, including:

- 42 percent of members surveyed reported 11 or more external audits during 2006 by regulators, customers, and third-party accreditation bodies.
- FAA resource issues are having an impact. A quarter of survey respondents reported losing customers or foregoing business opportunities because of inadequate FAA staffing.

Thus, safety is not just the FAA's responsibility, but that of every aviation maintenance employee performing work on behalf of a certificated repair station, air carrier or other aviation business. It is the FAA's role to ensure that repair stations have the procedures in place to ensure the quality of the work performed and to ensure that procedures are followed. Indeed, FAA regulations treat repair stations as extensions of an air carrier's maintenance organization. This means that the maintenance provider must perform the work in accordance with the carrier's maintenance program and the applicable portions of its manual. It also requires the airlines to provide a level of oversight to make certain these standards are met.

Critics may often times confuse certificated repair facilities with "non-certificated" facilities who employ certificated mechanics to perform on-call line maintenance for airlines. Although permitted under today's regulations, ARSA emphasizes that applicants for a repair station certificate must conclusively demonstrate to the FAA that they have the necessary infrastructure to perform the work. This includes housing, facilities, equipment, trained personnel, technical information required to perform the work and of course manuals describing the manner in which the repair station does business.

Foreign repair stations are an essential part of aviation.
Critics discussing contract maintenance often presume jobs are being sent overseas to foreign repair stations with no security or oversight. We are aware of no objective evidence supporting this proposition. In fact, the use of contract maintenance and the aviation system shows that foreign repair stations are a necessary part of the international aviation system. These entities must adhere to high quality standards, and the U.S. is a world leader when it comes to providing maintenance services to airlines. Any effort to restrict the use or number of foreign repair stations would likely lead to retaliatory trade actions by other countries and ultimately harm U.S. air carriers and the flying public.

The Chicago Convention of 1944 and International Civil Aviation Organization (ICAO) standards require that the State of Registry (i.e., the country in which an aircraft is registered) oversee the maintenance performed on that aircraft and related

components, regardless of where the work is performed.[6] Consequently, a U.S. registered aircraft requiring maintenance while outside of the U.S. must have that work performed by an FAA-certificated maintenance provider. For this reason, FAA-certificated foreign repair stations exist. Indeed, a foreign applicant for a repair station certificate must demonstrate to the FAA that its services are needed to perform work on articles subject to FAA jurisdiction.

Similarly, when an aircraft of foreign registry requires maintenance while in the U.S., only a repair station certificated or validated by the relevant NAA may perform the work. For example, only an EASA-certificated repair station may perform maintenance on an aircraft of French registry within the U.S.

Unlike the U.S., in which the FAA permits and expects airlines to perform maintenance on their fleets to complement their operations, European regulators view operations and maintenance as two distinct functions. EASA requires that an airline obtain a separate repair station certificate before it can perform maintenance of any kind, including work on its own aircraft.

In 1994, the air carrier Lufthansa converted its maintenance division into an independent stock corporation, Lufthansa Technik AG. Lufthansa Technik performs the maintenance for Lufthansa and also manages the airline's maintenance program. As European regulators see it, an airline's core competency is operating aircraft. This demonstrates that in-house maintenance is not necessarily a logical or necessary outgrowth of airline operations.

This legal regime has proven beneficial to American repair stations. Currently, there are 694 FAA-certificated repair stations outside the U.S. (see Appendix D). At the same time, there are approximately 1,200 EASA-certificated repair stations in the U.S., and numerous other NAA-certificated repair stations inside our borders.[7] Our aviation maintenance industry is highly-regarded worldwide.

Foreign repair stations are not an economic threat for U.S. companies, nor does their use threaten aviation safety. These entities must meet the same or equivalent safety standards as domestic facilities. Unlike their domestic counterparts, however, foreign repair stations must renew their certificate with the FAA annually or, at the discretion of the FAA, biannually, following a safety inspection. This ensures that the FAA evaluates the housing, facilities, equipment, personnel, and data of each repair station located outside the U.S. at least once every two years. The 2005 ARSA survey referenced above, viz., showed that the average FAA-certificated foreign repair station is audited more than 74 times each year by government regulators, customers, other third-parties, and the repair station's own personnel, suggesting a high-level of combined oversight.

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[6] *See*, ICAO Annex 8, ch. 4 § 4.2.1(b).

[7] Data obtained on European Safety Agency (EASA) Web site, for "Foreign EASA Part-145 Valid Approvals for Organisations Located in the United States" March 16, 2007.

Recent attempts at restricting the use of foreign repair stations, and specifically removing the FAA Administrator's ability to issue new certificates, would be highly detrimental. Many companies factor into their business plan the ability to open a new foreign repair station, and much time and effort goes into the application process. Prohibiting the issuance of new certificates because of another agency's rulemaking delay, such as contained in the recently passed Senate legislation, unduly punishes American companies and could cause retaliation by other civil aviation authorities.

Security is a prime concern of all repair facilities.
Security at contract maintenance facilities has become a hot topic on Capitol Hill. As with certain airline employees, many repair stations located on an airport are required to have their personnel undergo criminal background checks under TSA regulations if they require unescorted access to the designated airport security identification display area (SIDA). Therefore, a repair station employee that performs line maintenance for an air carrier would have the same 10-year criminal background check requirement as an airline mechanic. Many repair stations voluntarily implement security procedures since the quality and safety of their work directly affects their business.

However, many repair stations are located miles away from airports and perform specialized work on component parts that have been removed from the airplane and sent to them for repair. These facilities are usually small-businesses; thus, imposing undue security burdens on them would in effect put an entire sector of specialized workers out of business. Our members understand the need for safety and security, since their livelihood depends upon it, and we ask that Congress recognize the difference in repair facilities, remembering that our industry shares their same goal: maintaining a high level of safety and security.

Some manufacturers are not making needed repair information available.
FAA regulations require those holding design approvals (generally the manufacturers) of civil aviation articles to make repair information available to certificated maintenance facilities and operators of aircraft. However, ARSA's recent member survey establishes that more than 70 percent of respondents have had difficulty obtaining these manuals, and more than a third report the issue as a "consistent source of frustration". ARSA worries that if these practices are not addressed, safety will be adversely affected.

The main issues are the availability of maintenance manuals (particularly component maintenance manuals or CMMs), the cost of this information and the practices of some manufacturers that use the manuals as a competitive weapon. This includes charging exorbitant prices or removing important information so the work can only be performed by facilities with which the manufacturer has a commercial relationship.

Efforts to resolve this issue through the regulatory sector have not worked. The FAA division that oversees maintenance (Flight Standards) requires repair stations to generally follow the maintenance manuals when performing work. This applies to work on the aircraft, engine or propeller as well as off-aircraft component work. We believe

this regulation is good public policy because it promotes standardization of repair practices.

Unfortunately, the FAA division that has jurisdiction over design approval holders (Aircraft Certification) does not believe component maintenance manuals are essential to continued airworthiness. They believe that because these manuals govern work performed off the aircraft, they are not as important as work performed on the aircraft, such as removal and replacement of the component. We strongly disagree and believe this regulatory disconnect is contrary to safety and the plain language of the regulation.

As a result of this continuing problem, ARSA plans to request the Subcommittee to adopt legislation ensuring access to this maintenance information at a fair and reasonable price. ARSA is not asking that the information be provided free of charge, nor are we are asking the manufacturers to provide proprietary repair data; only that which is basic to continued airworthiness. With the amount of contract maintenance on the increase, we believe it is critically important that this issue be resolved in this year's reauthorization bill.

Conclusion

Contract maintenance has long been, and continues to be, a vital part of the aviation industry. Over the past decade, airline use of contract maintenance has steadily increased while we have experienced a period of unprecedented safety. Repair stations play a large role in this trend through the use of highly-qualified and trained employees, state of the art facilities, and a commitment to providing high quality maintenance services to airline, general aviation and even U.S. military customers.

Congress can help maintain these positive trends by providing the FAA with adequate resources to oversee the repair station industry, encouraging continued close oversight by airline customers, and ensuring that legislation and regulations are based on our common goal: safety.

Appendix A

FAA Repair Stations by State (Including Territories)

State	Number of Repair Stations	Number of Employees
AK	54	474
AL	55	6,274
AR	41	3,120
AZ	154	6,479
CA	689	30,827
CO	73	1,205
CT	104	7,754
DC	1	7
DE	6	794
FL	510	15,890
GA	115	11,335
GU	1	6
HI	13	114
IA	39	2,990
ID	31	379
IL	92	3,283
IN	73	3,306
KS	106	7,104
KY	38	695
LA	42	2,227
MA	56	1,918
MD	30	1,082
ME	11	854
MI	116	4,406
MN	60	1,920
MO	55	3,319
MS	20	1,019
MT	25	320
NC	67	3,721
ND	10	96
NE	13	1,213
NH	24	589
NJ	70	2,466
NM	21	695
NV	31	754
NY	130	5,588
OH	143	4,435
OK	142	11,505
OR	47	1,339
PA	102	2,251
PR	18	145
RI	9	384
SC	32	2,383
SD	14	73
TN	50	2,087
TX	425	26,183
UT	29	290
VA	45	1,303
VI	1	1
VT	11	158
WA	117	7,659
WI	44	1,520
WV	12	1,484
WY	9	78
Total	4,226	197,501

Based on FAA Air Agency Data Dated: March 18, 2007

Appendix B
ARSA 2005 Repair Station Audit Surveillance Survey Results

Domestic Repair Station Annual Audits

	Responses	Internal	Regulatory	Customer	3rd Party	Total
Total	183	3,301	663	1,361	235	5,560
Average		18.0	3.6	7.4	1.3	30.4

Foreign Repair Station Annual Audits

	Responses	Internal	Regulatory	Customer	3rd Party	Total
Total	27	1,439	219	311	48	2,017
Average		53.3	8.1	11.5	1.8	74.7

Total Repair Station Annual Audits

	Responses	Internal	Authority	Customer	3rd Party	Total
Grand Total	210	4,740	882	1,672	283	7,577
Average		22.6	4.2	8.0	1.3	36.1

Appendix C

Analysis of the Aeronautical Repair Station Association's 2007 Member Survey

Executive Summary

In March 2007, the Aeronautical Repair Station Association (ARSA) conducted a major survey of its members. The purposes of the 2007 survey were to:

- Develop a better understanding of the markets served by ARSA members;
- Determine what factors most affect member costs of doing business;
- Identify legislative and regulatory issues of common concern to the membership;
- Determine what members perceive as the most important parts of the ARSA value proposition; and
- Identify additional activities the association could undertake to enhance value to members.

This survey's major findings were as follows:

- ARSA's membership is dominated by privately-owned small businesses. Nearly 70 percent of the survey respondents have annual revenues below $10.5 million (Question 2); more than 67 percent have fifty or fewer employees (Question 3); and more than 81 percent are privately-owned by a single individual, single family, or group of partners (Question 12).
- The overwhelming majority of ARSA members (98.5 percent) hold Federal Aviation Administration (FAA) repair station certificates; however, more than two-thirds (68.42 percent) are also European Aviation Safety Administration (EASA) approval holders (Question 7).
- Commercial air carriers are overwhelmingly the most important customer market for ARSA members, with general (business aircraft) the second most important. The military and general (light aircraft) markets are a distant third and fourth (Question 9).
- Labor unions have low penetration in the repair station industry. Fewer than twelve percent of survey respondents report that their facilities are unionized (Question 13).
- The survey results suggest that the repair station industry is thriving economically. More than two-thirds (71.43 percent) of survey respondents said they plan to add positions and/or hire new workers in the coming year. Not a

single survey respondent reported plans to eliminate positions. Additionally, 83 percent of survey respondents are optimistic about business prospects for the coming year, only nine percent are ambivalent, and fewer than eight percent are pessimistic (Questions 15 and 18).

- There is a considerable level of oversight of repair stations, with 42 percent reporting 11 or more external audits last year by regulators, customers, and third-party accreditation bodies (Question 19).

- FAA resource problems are having some impact on the efficiency of the contract maintenance industry. A quarter (24.81 percent) of the survey respondents report losing customers or foregoing business opportunities because of regulatory delays resulting from inadequate FAA staffing (Question 20.)

- Obtaining maintenance manuals from manufacturers remains a major challenge for repair stations. Consistent with earlier ARSA surveys, more than 70 percent of survey respondents report having had some difficultly obtaining maintenance manuals from OEMs. More than a third (37.59 percent) of respondents report that maintenance manual availability is a consistent source of frustration, and that their ability to serve customers is undermined by manufacturers refusing to provide manuals and/or charging exorbitant prices (Questions 21 and 22.)

- Rising health insurance costs have had a significant impact on ARSA members and their employees, with approximately three-quarters (74.44 percent) of members reporting that they have had to reduce benefits or ask workers to shoulder more of the costs of health insurance in recent years (Question 25.)

- Close to 80 percent of survey respondents have had trouble finding skilled technical workers. More survey respondents cited the shortage of technical workers as the single greatest challenge facing that aviation maintenance industry than any other (Questions 26 and 30).

- ARSA members regard ARSA's advocacy activities on behalf of the industry before U.S. regulators and Congress as the most important parts of the ARSA value proposition. ARSA's regulatory compliance publications, *the hotline*, and maintenance industry networking opportunities are also highly regarded (Question 33.)

- Survey respondents cite their desire to support ARSA's advocacy activities and access to regulatory compliance assistance as the top reasons for joining ARSA (Question 34.)

- A majority of survey respondents say that their company employees have not yet participated in ARSA's Annual Repair Symposium, suggesting significant opportunities to grow member participation in ARSA's flagship event. Survey respondents are ambivalent about restructuring the Symposium to take place entirely on weekdays and about adding a trade show component to the meeting (Question 40, 42 and 43.)

Survey Methodology

ARSA's 2007 Member Survey was conducted between Feb. 26 and March 6 using SDI Weblink's online survey system. The ARSA key contact for each repair station member and corporate member was invited to participate in the survey through three e-mails sent over the course of the week requesting input. Although the survey was anonymous, the survey system was configured to prevent duplicate responses from the same individual. Ultimately, 133 ARSA member companies participated in the survey out of a population of approximately 520 regular and 15 corporate members. The survey margin of error is 7.3 percent.

Appendix D

FAA Repair Stations on Foreign Soil by Country

Country	Number of Repair Stations	Number of Employees
AE	4	4,224
AR	9	1,807
AS	13	6,658
AU	1	1,150
BA	1	5
BE	11	4,575
BR	15	5,773
CH	29	14,635
CI	4	754
CO	4	1,471
CS	3	480
DA	2	857
DR	2	43
EC	2	131
EG	1	3,500
EI	12	3,479
ES	1	1,200
ET	1	2,230
EZ	2	1,213
FI	1	1,800
FJ	1	26
FR	100	25,638
GM	53	30,671
GR	2	914
GT	2	55
HK	7	4,938
HU	2	408
ID	2	2,832
IN	2	806
IS	13	5,536
IT	18	6,620
JA	20	17,494
JO	2	740
KE	1	5
KS	9	5,629
LU	1	329
MO	2	1,231
MT	1	42
MX	21	4,213
MY	8	4,149
NL	20	7,034
NO	4	1,052
NZ	4	3,377
PE	4	670
PM	1	192
PO	2	3,174
QA	1	30
RO	2	938
RP	7	3,249
RS	1	2,350
SA	5	6,423
SF	4	3,790
SN	48	15,316
SP	6	4,360
SW	8	2,481
SZ	8	4,224
TD	1	153
TH	7	5,700
TU	2	3,006
TW	6	4,844
UK	161	22,621
UP	1	91
VE	4	304
WI	1	100
YI	1	-
Total	694	263,740

Based on FAA Air Agency Data Dated: March 18, 2007

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FAA Repair Stations on Foreign Soil by Country Code Listing (based on FAA data)

Country Code	Name	Total Repair Stations	Number of Employees	FAA IASA Category 1 = Meets ICAO standards 2 = Does not meet ICAO standards	Bilateral Agreement with the U.S.?
AE	United Arab Emirates	4	4,224	1	--
AR	Argentina	9	1,807	1	Yes
AS	Australia	13	6,658	1	Yes
AU	Austria	1	1,150	1	Yes
BA	Bahrain	1	5	Not Listed	--
BE	Belgium	11	4,575	1	Yes
BR	Brazil	15	5,773	1	Yes
CH	China	29	14,635	1	Yes
CI	Chile	4	754	1	--
CO	Columbia	4	1,471	1	--
CS	Costa Rica	3	480	1	--
DA	Denmark	2	857	1	Yes
DR	Dominican Republic	2	43	2	--
EC	Ecuador	2	131	1	--
EG	Egypt	1	3,500	1	--
EI	Ireland	12	3,479	1	--
ES	El Salvador	1	1,200	1	--
ET	Ethiopia	1	2,230	1	--
EZ	Czech Republic	2	1,213	1	Yes
FI	Finland	1	1,800	1	Yes
FJ	Fiji	1	26	1	--
FR	France	100	25,638	1	Yes
GM	Germany	53	30,671	1	Yes
GR	Greece	2	914	1	--
GT	Guatemala	2	55	2	--
HK	Hong Kong	7	4,938	1	--
HU	Hungary	2	408	1	--
ID	Indonesia	2	2,832	1	Yes
IN	India	2	806	1	--
IS	Israel	13	5,536	1	Yes
IT	Italy	18	6,620	1	Yes
JA	Japan	20	17,494	1	Yes
JO	Jordan	2	740	1	--
KE	Kenya	1	5	Not Listed	--
KS	Korea	9	5,629	Not Listed	--

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Country Code	Name	Total Repair Stations	Number of Employees	FAA IASA Category 1 = Meets ICAO standards 2 = Does not meet ICAO standards	Bilateral Agreement with the U.S.?
LU	Luxembourg	1	329	1	--
MO	Morocco	2	1,231	1	--
MT	Malta	1	42	1	--
MX	Mexico	21	4,213	1	--
MY	Malaysia	8	4,149	1	Yes
NL	Netherlands	20	7,034	1	Yes
NO	Norway	4	1,052	1	Yes
NZ	New Zealand	4	3,377	1	Yes
PE	Peru	4	670	1	--
PM	Panama	1	192	1	--
PO	Portugal	2	3,174	1	--
QA	Qatar	1	30	1	--
RO	Romania	2	938	1	Yes
RP	Philippines	7	3,249	1	--
RS	Russia	1	2,350	1	Yes
SA	Saudi Arabia	5	6,423	1	--
SF	South Africa	4	3,790	1	Yes
SN	Singapore	48	15,316	1	Yes
SP	Spain	6	4,360	1	Yes
SW	Sweden	8	2,481	1	Yes
SZ	Switzerland	8	4,224	1	Yes
TD	Trinidad & Tobago	1	153	1	--
TH	Thailand	7	5,700	1	--
TU	Turkey	2	3,006	1	--
TW	Taiwan	6	4,844	1	--
UK	United Kingdom	161	22,621	1	Yes
UP	Ukraine	1	91	2	--
VE	Venezuela	4	304	1	--
WI	Western Sahara	1	100	Not Listed	--
YI	Yugoslavia	1	-	Not Listed	--
TOTAL	**65**	**694**	**263,740**	**60**	**27**

Note: There are no foreign repair stations in Canada under the FAA-Transport Canada bilateral agreement. Similarly, the Canadian government does not issue certificates to US-based repair stations performing work on articles subject to Canadian jurisdiction.

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STATEMENT OF

PROFESSOR JOHN J. GOGLIA

DIRECTOR FOR THE CENTER OF INTEGRATED EMGERNCY MANAGEMENT

PARKS COLLEGE OF ENGINEERING AVIAITON & TECHNOLOGY

ST. LOUIS MISSORI

BEFORE

SUBCOMMITEE ON AVIAITON

COMMITTEE ON TRANSPORTATION AND INFRASRUCTURE

UNITED STATES HOUSE OF REPRESENTATIVES

MARCH 29, 2007

THE FEDERAL AVIATITON ADMINISTRATION'S OVERSIGHT OF OUTSOURCED AIR CARRIER MAINTENACE.

PROFESSOR JOHN GOGLIA
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Mr. Chairman and Members of the Subcommittee

I would like to thank you for the opportunity to share with you what I know about aircraft maintenance and the need for effective Federal aviation oversight of aircraft maintenance. All who travel, regardless of the mode of transport, believe that the federal government has in place rules and regulations that provide for their safe travel. This point has been made clear to me after meeting with survivors and surviving family members of transportation accidents. Also clear after a through review of these accidents is the fact that often times we have failed to meet not only the public's expectations but also failed to deliver on what is required under the regulations. Today we enjoy a travel system that is the safest in our history. However if we look back on the 3 accidents that have occurred in the past 4 years involving commercial 121 air carrier operations we find that our aircraft maintenance process and procedures to be lacking and we also find that the Federal Aviation Administration failed to adequately oversee these operators. Please note that the most current of the 3 that I mentioned, occurring in December of 2005 is still under investigation by the NTSB and the information I used was obtained from the public docket. I have not included the Comair accident in Kentucky in this discussion.

If we were to take a look back in time and review how we reached today's outstanding safety rate we would find an industry and government partnership that has driven material standards to new extremely high levels of performance. The same is true with aircraft power plants. This same type of industry/government partnership has progressed to the point that it is common for these power plants to deliver a level of reliability that was unthinkable 20 years ago. This same model of cooperation exists in new processes of manufacturing such as friction stir welding that is both lighter and stronger than existing methods of joining the components of an aircraft together. This cutting edge technology is in use today on a production aircraft because of the FAA's abilities within the aircraft certification division to evaluate new processes to insure that these processes meet of exceed the existing rules. A quick review of the NTSB data base reveals very few material failure events in the last 10 years.

This picture of good performance by the FAA starts to change soon after the aircraft leaves the manufacturer and enter into operating environment which is an overseen by a different group within the FAA. This group called Flight Standards has a very difficult task of overseeing our nation's aircraft in an environment that is constantly changing. Flight standards are responsible for everything involving aircraft operations up to the interface with air traffic control. This is a difficult and challenging task and one that the NTSB is constantly looking into after an accident or incident. Since the beginning of the FAA in 1958 the method of oversight has been the highly visible visits to a facility or aircraft by an aviation safety inspector who would make a determination on weather or not you were following the proper procedures and if not find a way to return to compliance with the procedures. After deregulation of the airlines the FAA soon faced an industry that was expanding rapidly without the agency's ability to keep up. Without the ability to add resources as needed they soon could not accomplish what congress and the traveling public expected of them. The FAA has tried many different approaches leading to today's Air Transportation Oversight System which may provide the FAA the ability to use data collection methods to provide indicators of operations that may need help. Clearly such a system could provide the FAA inspectors an indicator of where they need

to look deeper into the operation. However I must comment that this system as available today is not mature enough to replace the inspector's actual visit and spot checking however I believe a mature system can have a substantial impact on inspector workload. What does it take to provide oversight of an air carrier maintenance process? Since air carrier maintenance processes have several elements it will require an oversight system to address the different elements. A robust data collection and analysis system can provide indicators of issues in all areas but not equally. For example the industry has long used component reliability data to increase aircraft availability. An area that doesn't lend itself to data collection is in the area of following published procedures. Over many years we have focused on flight crews following procedures but we have not put anywhere that amount of effort into the maintainers following procedures despite a number of accidents and incidents where not following procedures was identified as an issue in causation. In Fact the entire area of Instructions for Continues Airworthiness often called maintenance manuals is in need of review by the FAA. These Instructions for Continued Airworthiness are the basis for the air carrier's maintenance program is often poorly explained or they have not been validated or verified. This has been a major contributor in several recent 121 air carrier accidents. It is often the professional aircraft mechanic who takes the correct actions in making repairs and not following the often inaccurate maintenance manual {I C A]. This also adds an additional problem in that it promotes not following the published procedures. I would also like to draw the Committee's attention to the fact that there have been several accidents involving maintenance manual problems and to date there has not been a major review of the maintenance manual [I C A] development process. One additional thought on the ATOS approach, many if not most aviation safety inspectors do not believe in this system [I do]. As a result I believe the FAA management will be required to provide a much higher level of initial training in an effort to get as high a confidence level as they can from as many air safety inspectors as possible. For ATOS to be successful most ASI's will need to believe in the process. The ATOS will also need to be expanded as the ASI's discover more necessary data points to be included in the process for analysis.

Both today and into the future the Air safety inspectors will need to continue to conduct hands on inspections of repair facilities although the ATOS process will help make these visits more focused. There are events that occur within the maintenance process that can only be discovered by observation. I have been involved in differences of opinion between maintainers and management that only because of the ASI's involvement did a complete discussion occur which resulted in a satisfactory outcome. Also when an aircraft is in a hanger for a heavy maintenance visit it can be very difficult to conduct surveillance of all the work accomplished but I also know from years of working in that type of facility that a very accurate picture of what has transpired can be gleamed by being present during the final operational checks as well as observing the acceptance check flight if required. This is the point that many of the shortcomings in both personnel and process will become clear and the only way to gather the required information is to be present. Today this has become a greater challenge with so much of the heavy aircraft maintenance performed outside of the United States. I'm told that some of these located outside the U.S. are only visited once per year. Frankly that is not enough presents to

insure compliance. Add to this that there may be more air carrier personnel monitoring the spare parts inventory than personnel that monitor the actual maintenance.

No discussion on oversight of repair facilities would be complete without discussing the mechanics who accomplish the repair tasks and their qualifications. Today I see problems on several fronts. First there is a real shortage of qualified maintenance personnel. In the past several studies have predicted a shortage of qualified maintenance personnel. We have reached that point today. After years of worker layoff's many mechanics have found employment in other industries. In fact a recent recall of displaced employee's from a major airline found about half decided not to return to aviation. Add to this the fact that our training providers report enrollments down considerably with a number of facilities closed or closing. This is in part caused by the high cost of the required training. It can be difficult to justify spending $25,000.00 for education for a job that the starting pay is $15.oo per hour and top out at $25.00 for most mechanics. Additionally the industry would like to have a person coming out of school that is trained on the current commercial fleet. However the majority of new mechanics will not be provided employment in commercial aviation so the FAA is hard pressed to change the present requirements. Some organizations have joined together in an effort to create standards that raise the bar on education and training. Most notable is the efforts of SAE International and the Professional Aviation Maintenance Association in their Development of advanced standards for maintainers. One Example of what they have accomplished is in the training and education required of a person who would approve and or repair a composite material structure. Modern aircraft have more and more composite materials built into the structure but the FAA has been unable to keep up to the industry in its speed in adopting this material for aircraft. By partnering with SAE international and the Professional aircraft maintenance Association there is now developed an education and training standard for all to follow if they wish. This effort shows some real promise in helping the industry through the expected manpower shortages. The aviation operators are not alone in needing new employees. Within the past few weeks I noticed on the FAA's website about 100 jobs for badly needed aviation safety inspectors. I said badly needed because the number of ASI's has declined from attrition and other reasons and it is causing problems in both safety inspections and in approvals for work to be accomplished which can be quite expensive. Some FAA offices try to move resources around to made do with some limited success. Also I mentioned earlier that I believe additional training would be required in order to bring most ASI's to a higher level of confidence in the ATOS system. Presently the only way the FAA can provide this training is to ignore the present job requirements while the ASI is in training. Additionally the 100 or so new hire inspectors will require time and training before they can provide any meaningful impact on this problem. Also note that these new positions will not bring the ASI headcount up to the levels of 3 years ago. The agency will still need a few hundred more to return to the 2002 level.
Today we are again experiencing growth across the entire aviation sector and we again find the FAA tiring to catch up to industry expansion. Additionally there are a number of proposed new entrant carriers waiting in the approval process for certification.

In order to accomplish the task that the congress and the American public expect of the agency the resources must be available. At the present time the agency does not have the required resources. Ironically this comes at a time when the agency has management team that is willing and capable of tackling these difficult issues.

Thank You for the time to share my views on this subject

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DEPARTMENT OF LEGISLATIVE & POLITICAL AFFAIR

TESTIMONY OF JAMES C. LITTLE
INTERNATIONAL PRESIDENT OF THE TRANSPORT WORKERS UNION
(TWU)

BEFORE THE
SUBCOMMITTEE ON AVIATION OF THE
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
HEARING ON FAA OVERSIGHT OF
OUTSOURCED AIR CARRIER MAINTENANCE

MARCH 29, 2007

The Transport Workers Union of America, AFL-CIO (TWU) on behalf of its 130,000 members in the transportation industry, including the airline mechanics at American Airlines, appreciates the opportunity to appear before this Committee. I particularly want to commend the Committee for turning the spotlight on what has been a long-ignored source of danger to U.S. airline passengers – the double standard applied to aircraft maintenance at outsourced stations as opposed to that performed at the carriers themselves.

Indeed, the TWU has long sought one level of safety and security for all maintenance on all aircraft used in domestic air service. We have particularly fought to undo the irresponsible regulatory changes in 1988 that allowed the Federal Aviation Administration (FAA) to certify foreign aircraft repair stations to work on U.S. aircraft not engaged in international travel and to do so under different standards than that applied to domestic stations. Our concerns have only grown in the aftermath of the September 11 terrorist attacks as we have fought to bring heightened awareness to the many security problems that remain unaddressed at contract repair stations.

Standards and Oversight Misaligned With Risk

Understanding that resources to ensure safe and secure air travel are not unlimited, the TWU starts from the premise that those repair facilities which pose the greatest safety risks and the greatest security risks are those that should be subject to the toughest

standards and receive the most intense scrutiny by the FAA. It is quite apparent that exactly the opposite is the case.

Arguably the safest, most secure maintenance work is that done *in-house by the carriers* themselves. This work receives the greatest scrutiny and oversight by the carriers – the work is done under the direct control of the carriers' supervisors and there is an additional layer of supervisors and inspectors dedicated to compliance with FAA safety regulations.

Receiving less direct oversight from the carriers is work they contract out to *domestic contract repair stations.*

Posing substantially greater risk than either of the above is work done at *foreign contract repair stations,* far from direct supervision by the carrier, and work done by *non-certificated domestic repair stations* which are supposed to be the responsibility of the carrier.

Carriers' In-House Repair Work

This is the work that is held to the highest standards and receives the majority of FAA inspection oversight, despite the fact that more than 50% of maintenance on aircraft flown in U.S. domestic service is now outsourced. Mechanics who work on aircraft are usually certified under Part 65 and for those that sign-off on this work this certification is required. All U.S. mechanics are subject to random drug and alcohol testing. They must pass criminal background checks to work there. And carrier operations are subject to unannounced inspections by FAA inspectors at any time and any place.

Foreign Aircraft Repair Stations

Compare this to the certification of foreign aircraft repair stations. First, they are exempt from many of the rules and standards that apply to domestic repair stations.

Drug & Alcohol Testing. In all but a handful of stations (where local laws require it), foreign repair personnel do not have to pass drug and alcohol tests to work on aircraft destined for U.S. domestic air service.

The U.S. Congress has determined that any amount of drug or alcohol impairment on the part of aircraft mechanics presents an unacceptable risk to airline passenger safety. The U.S. Supreme Court has upheld this requirement on the grounds of safety (limiting it to "safety-sensitive personnel"). Our members have come to accept the random drug and alcohol testing regulation, though these requirements are obviously still a source of fear and uncertainty.

I am not here protesting drug and alcohol testing, but if the FAA believes it is necessary to ensure the safety of U.S. domestic air service, how can it be any less necessary when that work is performed overseas. Either it is a necessary safety precaution and it should

be applied to everyone who works on maintaining aircraft for U.S. domestic service or it really isn't necessary and should be repealed in the U.S. We should not degrade airline safety by creating a loophole by which domestic carriers can avoid drug and alcohol testing.

I am not saying, as some have claimed that foreign countries must change their laws to institute wide-spread testing. What I am saying is that, in the interest of achieving one level of safety, foreign stations who want the right to work on U.S. registered aircraft that operate in this country be required to meet the same safety and security standards the FAA imposes on U.S. domestic stations.

This is not interference in the sovereignty of other countries, but consistent with U.S. practice in many other areas of safety. We require automobiles imported into the U.S. to meet *our* safety standards, no matter what the standards of the country of their manufacture. We require food imported into the U.S. to be grown in a manner consistent with our health and safety laws. It makes no sense that we insist on U.S. safety standards for automobiles and food, but not for aircraft where the potential danger should be apparent.

Aircraft Mechanic Certification. There are dozens of other requirements the FAA imposes on aircraft maintenance performed domestically from which foreign repair stations are exempt. The FAA says experience is not enough to work on these aircraft – mechanics who perform any number of jobs on U.S. aircraft are required to go through a thorough and grueling certification process to receive a Part 65 mechanic's license. There is no such requirement of foreign stations. Nor are mechanics who work on planes at foreign repair stations even required to be able to read the repair manual so long as there is one person at the station who can and who signs off on their work.

Dual Security Standards. Following the events of September 11, an additional layer of protections and restrictions were imposed on domestic aircraft maintenance to provide increased security from terrorist attacks. Every airline passenger is familiar with changes affecting passengers and flight procedures – restricted entrance to gates, no-fly lists, hardened cockpit doors, etc.

But an equally stringent set of procedures was implemented to cover mechanics and ramp employees. First, limited access areas were established strictly controlling access to all aircraft. Second, Congress and the Transportation Security Administration (TSA) imposed criminal background checks and terrorist watch list reviews on all aviation workers, including mechanics, who have unescorted access to a secure area of an airport. In addition, the FAA and TSA issued rules that require the FAA to revoke airman certificates, which include a Part 65 mechanic certification, of any individual determined by the TSA to pose a threat to aviation security.

Again, these rules were put in place because policymakers believe it is important to ensure the security of those that work in these sensitive positions. Yet neither the FAA, the TSA, nor any other U.S. government agency requires any type of background check

for workers at foreign stations who repair or maintain U.S. aircraft. At least at domestic contract repair stations Part 65 mechanics are covered by the TSA/FAA rule. While in theory the TSA/FAA rules apply to Part 65 mechanics located overseas, foreign stations are allowed to work on U.S. aircraft without having any certified mechanics; as such, from a practical standpoint, this rule does not apply to foreign stations.

Loose or nonexistent security at foreign aviation facilities provides a window of opportunity for terrorists with designs on U.S. air travel. From a security standpoint it is not hard to imagine how certified foreign aircraft repair stations, working on U.S. aircraft, could provide terrorists with an opportunity to sabotage U.S. aircraft or components that will eventually re-enter the U.S.

For this reason, and in light of the absence of criminal background checks, secured areas and other security precautions at foreign bases, Congress in the 2003 FAA Reauthorization required the FAA to issue a regulation providing for security audits of all foreign repair stations and empowered it to revoke certification from any station that failed to meet acceptable security standards. They were to complete final rules by August 2004 and finish audits 18 months after the rule was issued..

In blatant disregard of the will of Congress and the safety of the flying public, the FAA and TSA have blatantly ignored this legislative requirement. The result is a gaping hole in our security perimeter. U.S. air passengers fly under the belief that there is a regimen in place to make certain that terrorists do not have access to the planes they fly in. That is not true and will remain a fantasy until we subject foreign repair stations to the same level of security as domestic stations.

Dual Standards on Oversight and Inspection. The different, unequal requirements applied to various repair stations is only one source of the misalignment between risk and resources. The unequal enforcement of those requirements is another.

A 2003 report by the Department of Transportation Inspector General (IG) found that while foreign stations were widely used by U.S. carriers, some FAA-certified foreign repair stations are not inspected at all by FAA inspectors because civil aviation authorities review these facilities on FAA's behalf.

Again, there are consequences when foreign inspectors are utilized. The IG determined that foreign inspectors do not provide the FAA with sufficient information to determine what was inspected, what problems existed and how they were addressed. The IG reported that one foreign authority representative explained that "they did not feel it was necessary to review FAA-specific requirements when conducting repair inspections."

Those foreign stations which are inspected by the FAA hardly fare any better. The law requires a recertification inspection every two years, and for many stations that is all they get. When the regulations governing foreign repair stations were loosened in 1988, there were 200 such stations. That number has exploded 350% since then, yet oversight has not kept pace.

In 1997, the last year for which we have numbers, the FAA had 73 International Field Officers to service 497 foreign repair stations. The number of foreign repair stations has increased 40% since then to 697 while the number of IFOs has held constant (74).

Second, even this small amount of oversight is rendered useless since *U.S. policy requires the FAA to give advance notice to a country of any inspection of FAA-certified aircraft repair stations sited in their country.* This is true even in those countries rated category 3, meaning the country's civil aviation authority does not comply with the International Civil Aviation Organization's (ICAO) standards for safety oversight.

FAA inspections in the United States are unannounced and unexpected. All my members working in shops or online know that an inspector could show up unannounced at any time, looking over their shoulder while they accomplish their work. And inspectors in the U.S. have the run of the plant – there is no place they don't go. The FAA requires unannounced inspections at all FAA-certified U.S. repair stations, insisting it is essential to air safety. They argue that it is human nature to put forward your best practices and best appearance if you know there will be an inspection, behavior which would reduce the effectiveness of the inspection. One assumes that individuals at foreign stations are no less human. If the safety of the flying public requires unannounced FAA inspections, then this must be the standard for all repair stations wishing to perform work on aircraft for domestic U.S. service.

Again, we are told that the double standard on unannounced inspections is at the insistence of the State Department in order to respect national sovereignty. Again, as I argued in the case of drug and alcohol testing, no one is suggesting we violate the sovereign rights of another country – they can allow unannounced inspections or not, as they prefer. But should they refuse, then the U.S. should exercise *its* sovereign right not to certify repair stations in those countries to work on aircraft used in U.S. domestic service.

FAA-Certified Domestic Contract Repair Stations

While domestic contract repair stations certified by the FAA are required to meet the same standards on things like drug and alcohol testing, Part 65 mechanic license certification, etc., there is a distinct double standard in the enforcement of these rules in comparison with maintenance done by the carriers in-house.

Even two years after September 11, the Department of Transportation Inspector General (IG) found that the FAA had continued to concentrate its inspection and oversight resources on air carriers' in-house maintenance operations, citing one carrier where the FAA completed 400 inspections of the carrier's in-house operations while only seven inspections were conducted of the contract repair stations used by that carrier to outsource work. Given the growth of contracted maintenance to over 50% of U.S. air carriers' maintenance budgets, this double-standard in oversight procedures must be

corrected, especially as our government embarks upon new regulations aimed at protecting against security breaches at foreign and domestic contract repair stations.

The fact is that this lack of oversight has consequences. Specifically, the IG review discovered weaknesses in 86 percent of the contract repair stations visited. The IG found repair stations that did not (1) use the parts required by the maintenance manual; (2) properly calibrate tools and equipment that were being used in repairs; (3) have information on file to show that mechanics approving completed repairs had the necessary training and qualifications to do so; and (4) correct deficiencies previously identified by FAA inspectors. The IG determined that "left uncorrected, these deficiencies could lead to an erosion of safety...and sent undetected by FAA surveillance because of the weaknesses in FAA's oversight structure."

These concerns are not just academic. On January 8, 2003 Air Midwest flight 5481 (doing business as US Airways Express) crashed shortly after take-off at Charlotte-Douglas International Airport killing two crew members and 19 passengers. The National Transportation Safety Board found that a contributing cause of the accident was the lack of oversight, both by the FAA and the carrier, of work being performed at a contract repair facility in Huntington, West Virginia.

Non-Certified Repair Facilities

There also exist noncertificated repair facilities, supposedly used by the carriers to perform minor maintenance, such as checking of engine oil levels, changing tires, etc. But a 2005 IG Report finds that, following the principle of give-them-an-inch-and-they-take-a-mile, many carriers are using them to perform scheduled and critical maintenance. Without repeating what you can read in the IG report, let me state the obvious. It makes no sense to have safety rules if carriers don't have to follow them. These stations are supposed to be under carrier oversight, but the IG found that in many cases that consisted primarily of "telephone contact." If carriers' in-house maintenance work requires FAA inspection and oversight, how much more true is this of repair shops out from under the watchful eye of the carriers? All repair facilities that perform maintenance on aircraft used for U.S. service should be required to be FAA-certified, meet the same standards, and receive at least the same amount of oversight as in-house repair facilities.

Costs and Parameters

I am sure there is no one in the room who does not understand that I am appearing here, not only on behalf of the safety and security interests of U.S. air travel, but also on behalf of the jobs of our members who are forced to compete on this unlevel playing field.

But, before anyone lets loose a cry of "Special Interest", let us be clear that all sides in this debate are representing their interests. Those in the aviation industry who champion the double standard are simply trying to save money by getting the work done out from under the costs imposed by U.S. safety and security safeguards. Industry representatives admitted as much when they testified in front of the TSA against implementing security

audits of foreign bases. And foreign interests petitioning for the status quo no doubt see a business opportunity they do not want altered.

Cheap labor is one thing, but allowing airlines to escape the costs of complying with safety and security procedures through FAA-created loopholes is another. One is simply the era of globalization; the other involves a conscious flouting of US aviation safety and security measures to save a buck. It defeats the entire purpose of FAA regulation.

So, by all means, let's address the money question.

Taxpayer Costs
It falls into two categories. First, is the cost to the taxpayer. Applying the same inspection regimen to foreign and domestic contract repair stations as is currently applied to carriers' in-house maintenance would obviously require a large increase in the number of FAA inspectors. However, if the regulatory scheme makes any sense at all (that is, if it makes sense to apply it to U.S.-based work), then saving money by not enforcing the regulations makes no sense.

We see three non-exclusive solutions to this problem which we submit without preference:

- Increase the budget for FAA inspections and mandate they be done overseas with the same frequency and rules as done in the U.S.
- Reduce the cost of foreign inspections by reducing the number of FAA-certified foreign repair stations to only those required for international aviation service.
- Take some of the inspection and oversight currently done on carriers' in-house maintenance and move it to foreign and domestic contract repair stations.

Air Carrier Costs—A Different Model
What makes the sacrifice of safety and security even more tragic is that outsourcing to foreign or domestic repair stations is <u>not</u> the only way U.S. air carriers can become cost-efficient.

American Airlines together with the employees chose a different path. They realized that real efficiency comes from tapping the knowledge and experience of the hands-on workers. In a process that began with skepticism and wariness on both sides, American rejected the go-into-bankruptcy-and-gut-the-union-contract school of management and allowed workers and union a real voice in organizing the work.

Understanding that turning out the work more efficiently, and streamlining its entire operation is tied to job security and wage gains, our Aircraft Maintenance Technicians (mechanics), and support staff at American have done such a good job that we are currently in-sourcing work from other airlines.

Labor costs are only one part of the cost of repairs. Every week an airplane sits in the shop represents lost revenue. By turning the work around faster than other repair stations,

we are able to return aircraft to revenue service fast enough to offset our labor costs. As example: What normally would take twenty five (25) days to do a complete major aircraft overhaul, it now takes 13 days, and overall reduced costs by fifty five (55) percent.

MAJOR RECOMMENDATIONS

1) Require that all maintenance on aircraft used in domestic U.S. service be done in FAA-certified repair facilities.
2) Require, as a condition of FAA-certification, that all repair stations meet the same standards. This includes, but is not limited to, drug and alcohol testing and Part 65 aircraft mechanic certification. Any requirement that is not imposed on foreign stations should be repealed as a requirement of U.S. stations.
3) Reconfigure FAA inspection and oversight to place the greatest scrutiny on those repair stations which audits determine to pose the greatest risk to safety and security.
4) Require, as a condition of FAA-certification, that all repair stations be subject to unannounced FAA inspections. The FAA shall be prohibited from certifying any repair station in a country that prohibits unannounced inspections and shall immediately revoke any existing certifications in that country.

STATEMENT OF NICHOLAS SABATINI, ASSOCIATE ADMINISTRATOR FOR AVIATON SAFETY BEFORE THE HOUSE COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE, SUBCOMMITTEE ON AVIATION ON THE FEDERAL AVIATION ADMINISTRATION'S OVERSIGHT OF OUTSOURCED AVIATION MAINTENANCE, ON MARCH 29, 2007.

Chairman Costello, Congressman Petri, Members of the Subcommittee:

I am pleased to appear before you once again, this time to discuss the Federal Aviation Administration's (FAA) oversight of air carrier maintenance that is outsourced to repair stations, both domestically and abroad. (Just to be clear, outsourcing is any maintenance performed for an air carrier by any individuals who are not employed by the air carrier here and abroad.) I know the industry trend to outsource more of its maintenance in recent years has been a concern for some of you. To some, outsourcing equates to cutting corners to save a few dollars. To some, less costly maintenance means less safe maintenance. To some, repair stations represent lesser quality maintenance. All these assumptions imply that safety is being compromised as more maintenance is outsourced. I am here today to reassure you that the quality of maintenance is not compromised simply because it is not being done by an air carrier. No less an authority than the former Department of Transportation Inspector General (IG), Ken Meade, testified before Congress that use of these stations is not a question of quality, but rather an issue of oversight. We agree, which is why the FAA is continually improving and refining our oversight of maintenance, no matter where it is performed or by whom.

Let me start by stating the obvious. The system is safe. As this subcommittee well knows, we have achieved the highest safety standards in the history of aviation. Even so,

our goal is – as always – to continue to improve safety. I would like to share with you a chart that goes to the heart of this hearing. (See the attachment at the end of the statement.) The lines represent the percent of maintenance that is being outsourced and the accident rate, per hundred thousand operations. I think this picture is worth a thousand words. Although the percentage of outsourcing has never been higher, the accident rate has never been lower. These statistics amply demonstrate that aviation safety is not dependent on airlines performing their own maintenance.

Before I explain the specifics of FAA's oversight of outsourced maintenance, let me take a moment to describe the office of aviation safety. Last year, after years hard work, my office achieved ISO 9001 certification. This certification ensures that, worldwide, FAA safety offices provide standardized service and products, and that we adhere to the same safety standards as those businesses we regulate. We are the only federal organization of our size, scope and complexity to have achieved ISO certification under a single quality management system. It was through my employees' dedication and hard work that we achieved ISO certification. Not one milestone was missed on our road to certification. So, our oversight of maintenance is part of an independently validated approach to holding ourselves to some pretty high standards.

Previously, our oversight was based largely on inspector knowledge and information that was available as the result of individual inspections. This approach was the best we could do at the time, but it was far from comprehensive. The effectiveness of our oversight could vary from facility to facility. What we are doing now is managing risk

and requiring system safety. Just as we have worked the concept of system safety with the airlines, we are currently introducing the concept to repair stations.

Let me explain what I mean by system safety. System safety is extremely comprehensive. It sounds like a simple list of requirements, but in reality, it is a sophisticated approach to ensuring that everything is in place to obtain the information that can identify vulnerability in time to address it before safety is compromised. System safety requires the following attributes. It must be clear who is responsible for different aspects of the operation. The responsible person must have the authority to take necessary action. There must be procedures in place to execute required actions. There must be controls in place to insure that a consistent product or service is being provided. There must be oversight/auditing procedures in place to independently evaluate the effectiveness and consistency of the operation. And lastly, there must be interface procedures in place to ensure that different parts of the organization are effectively talking to each other. Consistency is the goal. Inconsistency signals the need for a closer look and can provide us the early warning we need to get ahead of problems that could affect safety.

In addition, these attributes must be supported by a written Safety Policy expressing senior management's commitment to continually improve safety and includes safety risk management processes, safety assurances, and safety promotion. Safety risk management processes are used to assess system design and verify that safety risk management is integrated into all processes. Safety assurances continually identify new

hazards and ensure risk controls achieve their intended objective. Safety promotion ensures an environment where action is taken to create a positive safety culture where people acknowledge their accountability and act on their own individual responsibility for safety.

This is what we requiring of all organizations for which we have safety oversight responsibility, whether it be an airline, a manufacturer or a repair station. With these elements in place, our inspectors can perform hazard analyses and identify risk so that threats can be pre-empted. Instead of relying solely on information from individual inspections alone, we now perform a sophisticated analysis of anomalies identified and entered into the system. The analysis can provide us trend information that effectively targets our oversight. This is a much more comprehensive approach than what we were able to do previously. It allows us to get in front of potential problems in order to prevent them. This is not only a better use of FAA resources, it enhances safety.

The past few years have been about continuing forward and making adjustments to an already robust system. We have been working closely with the Department of Transportation Inspector General's (IG) office since their issuance in 2003 of the report "Review of Air Carriers' Use of Aircraft Repair Stations." The report identified specific areas where the IG felt improvements could be made. In response to the report, we made a number of changes to our oversight of repair stations. In 2004, we revised the regulations that apply to repair stations. The rule improved quality control requirements, equipment requirements, and provided more detailed requirements on the use by repair

stations of external maintenance providers. In 2005, we issued guidance to enhance oversight of repair stations based on system safety requirements and risk assessment. In 2006, we developed and implemented software to further enhance oversight, risk assessment, and risk management processes used in our oversight. We've improved our Safety Performance Analysis System to provide sharing of information between the inspectors assigned to the repair station, and those assigned to the air carrier. We've also improved the training requirements for certain repair station personnel.

We are currently testing a different way to oversee the work performed by complex repair stations. We call this approach the Certificate Management Unit (CMU) concept. CMU is a model of oversight for complex repair stations that parallels the way we conduct oversight of air carriers. It is currently in place at two of the country's most complex repair stations. CMU will provide for dedicated inspectors providing oversight at the assigned repair station. This addresses the criticism that FAA has failed to adapt its oversight of repair stations to reflect their increasing use by air carriers. Having assigned inspectors at these repair stations will further reduce the differences between the way we oversee major repair stations versus major airlines. We will continue to evaluate, modify and expand this concept as appropriate.

I mentioned at the outset that my office is ISO certified. Part of what this means is that, as an organization, we must continually evaluate what we are doing to identify where we can improve. So I fully expect ongoing modifications to our oversight procedures and analysis as we learn more and develop new and better tools.

I would now like to turn my focus to foreign repair stations because I know they have been of particular interest to this subcommittee. As is the case with domestic repair stations, there is an incorrect perception that a carrier's use of a foreign repair station is somehow unsafe or done solely to reduce maintenance costs. I know there have been a number of efforts to restrict a U.S. carrier's ability to use foreign repair stations, but I do not believe these efforts would enhance safety. It is important to understand that FAA only certifies a foreign repair station if a U.S. carrier wants to use it. So there is a need element in place. The repair station must meet the same standards that we apply to repair stations in the United States or we will not certify it. Safety is addressed because we require that all aircraft that are registered in the United States be maintained to U.S. standards, regardless of where they operate. Due to the global nature of aviation, we must have repair stations that meet U.S. standards throughout the world. It is an essential element of the U.S. being a leading provider of international transportation services. Finally, keep in mind that, as is the case when a carrier uses a domestic repair station, the carrier has the ultimate responsibility to ensure that the maintenance is being performed appropriately. All of this adds up to a great deal of supervision. The repair station has internal controls, foreign government oversight, airline oversight, and FAA oversight.

In three countries (France, Ireland and Germany) where we have Bilateral Aviation Safety Agreements (BASA), we have outlined maintenance information procedures (MIP) to ensure that foreign inspectors are placing appropriate emphasis on the Federal Aviation Regulations when conducting review of work done on U.S. aircraft. We have a

long history and experience with these aviation authorities. In these countries, we rely on the oversight of the aviation authority in addition to our periodic inspections. We are also working to ensure that these foreign aviation authorities inform us and seek FAA approval of changes to repair station operations if they directly impact FAA requirements.

In response to the IG, we have also made some changes to our oversight of foreign repair stations. For example, we eliminated the 10% sampling requirement on FAA's inspection of repair stations in countries where there is a BASA/MIP in place. In FY 2006, FAA conducted sampling inspections in 21% of the repair stations located in these countries. We have also developed and implemented policy and procedures in the BASA/MIP countries to capture and document the results from the inspections conducted by foreign authorities for inclusion in the Program Tracking and Reporting System.

It is also important to remember that, by its nature, aviation is truly an international enterprise. An aircraft, especially in commercial aviation, contains parts manufactured all around the world. The original equipment manufactures (OEMs) have a wealth of expertise in repairing their products. In addition, their parts may have warranties. It would be extremely unwise to restrict a U.S. carrier's ability to use OEM maintenance, even if the OEM is abroad.

There are a number of other reasons for air carriers to choose to outsource some maintenance and repair activities. The expertise of OEMs is so considerable and their

work is so consistent that maintenance is often outsourced to them, regardless of whether the maintenance being performed is on a part they manufactured. In other cases, overseas repair and maintenance facilities may provide a great deal of expertise, or lower costs. Nevertheless, just as aviation safety is in no way compromised by allowing U.S. carriers to fly aircraft made in Europe, in Brazil, or in Canada, so too is safety in no way compromised by allowing other countries to conduct repair and maintenance on our aircraft.

I would like to conclude this morning by saying that our work with the IG's office in the past few years has been productive. We have made a number of adjustments that I think have improved the effectiveness of our oversight. That can only improve safety. I think we generally agree that we are moving in the right direction. Certainly, the chart I talked about reflects that airline use of repair stations has not compromised safety.

I understand and appreciate this subcommittee's concern about the increased use of repair stations in this country and abroad. Obviously, we share a common goal to find ways to improve safety at a historically safe period in U.S. aviation. I can assure you that my office is totally committed to making whatever adjustments the situation demands when it comes to safety oversight. Hearings like the one today continue a necessary dialogue. I do not claim to have all the answers. I think the changes we have made in recent years are good ones. But we can't sit still. There will always be ways to improve and we will continue to look for them.

This concludes my statement. I will be happy to answer your questions at this time.

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

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Aviation Safety: FAA's Oversight of Outsourced Maintenance Facilities

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

Mr. Chairman and Members of the Subcommittee:

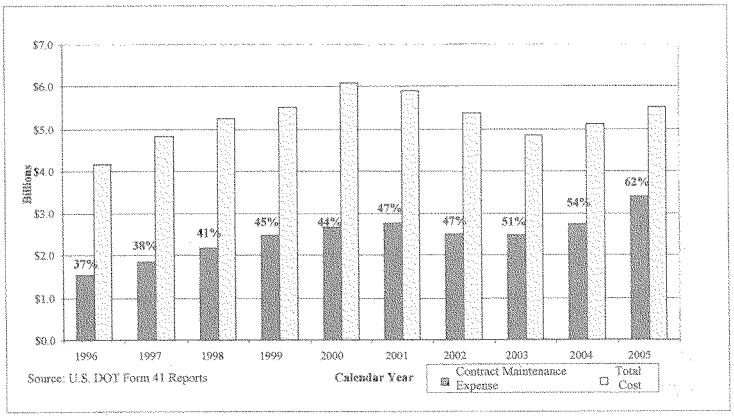
We appreciate the opportunity to testify on the Federal Aviation Administration's (FAA) oversight of outsourced air carrier maintenance. Our testimony today is based on a number of our previous reports as well as our ongoing work. At the outset, it is important to note that while the United States has the most complex aviation system in the world, it is also the safest. Multiple layers of controls in air carrier operations and maintenance processes, along with FAA's oversight, are largely responsible for the high level of safety that we have seen in the last 5 years.

This safety record is a remarkable accomplishment given the many changes occurring within the industry. For example, as air carriers continue to struggle for profitability, they are aggressively working to cut costs by reducing in-house staff, renegotiating labor agreements, and increasing the use of external repair facilities.

Today's aviation environment continues to evolve. Since 2001, eight commercial air carriers have filed bankruptcy, two major air carriers have merged, and one has ceased operations. While four of the eight air carriers have emerged from bankruptcy, fuel prices continue to climb; this makes cost control a key factor in not only sustained profitability but overall survival of an airline. Personnel and aircraft maintenance are significant cost areas within an air carrier's operations. Outsourcing maintenance has been a primary tool that air carriers have used in recent years to reduce costs.

Air carriers have outsourced maintenance for years because external repair facilities can complete repairs for less cost and provide services in areas such as engine repair that would otherwise require air carriers to have specialized expertise and staff. However, in recent years, use of external repair facilities has become more pronounced. As shown in figure 1, from 1996 to 2005, while total maintenance costs have fluctuated, air carriers continued to increase the percentage of costs spent on outsourced maintenance from 37 percent to 62 percent, or nearly $3.4 billion of the $5.5 billion spent on maintenance. During the first three quarters of 2006, the amount of outsourced maintenance increased to 64 percent.

Figure 1. Percentage Increase in Outsourced Maintenance Expense for Major Air Carriers[1] From 1996 to 2005



It is important to note that the issue is not where maintenance is performed but that maintenance requires effective oversight. Our past reports have identified challenges in FAA's ability to effectively monitor the increase in outsourcing. For example, in July 2003, we reported[2] that FAA had not shifted its oversight of aircraft maintenance to the locations where the maintenance was performed. Although air carriers were using external repair facilities to perform more of their maintenance work, FAA still focused most of its inspections on the maintenance work that air carriers performed within their own facilities.

FAA has taken a number of steps to improve its oversight, and we will discuss some of those improvements today. However, the continuous growth in outsourcing underscores the need for FAA to remain vigilant in its efforts to continually improve its oversight.

Today, I would like to discuss three areas, as we see them, for strengthening FAA's oversight of outsourced air carrier maintenance:

- **Advancing FAA's risk-based oversight systems:** During the past 8 years, FAA has taken important steps to move its safety oversight for air carriers and repair stations to risk-based systems. FAA's new oversight system for repair stations is designed to help FAA inspectors focus their outsourced maintenance oversight on

[1] Alaska Airlines, America West Airlines, American Airlines, Continental Airlines, Delta Air Lines, Northwest Airlines, Southwest Airlines, United Airlines, and U. S. Airways.

[2] OIG Report Number AV-2003-047, "Review of Air Carriers' Use of Aircraft Repair Stations," July 8, 2003. OIG reports and testimonies can be found on our website: www.oig.dot.gov.

areas that pose the greatest safety risks. FAA is clearly on the right path; however, the risk-based systems are not yet at an end state. FAA's risk-based system for air carriers needs to be more flexible and comprehensive, and FAA needs to ensure that inspectors are effectively using the new system for outsourced maintenance.

- **Determining where the most critical maintenance is performed and how it should be monitored:** FAA cannot effectively implement a risk-based system for oversight of aircraft maintenance if it does not know where the maintenance is performed. In July 2003 and December 2005,[3] we reported that FAA did not have good systems for determining which repair facilities air carriers were using to perform their most critical maintenance. FAA has developed new inspector guidance and air carrier processes to address this problem, but these efforts still fall short of providing FAA with the information it needs. For example, FAA has developed a voluntary process for air carriers to report the top 10 critical maintenance providers used each quarter. However, as long as the process is voluntary, FAA cannot be assured that it is getting the accurate and timely information needed to determine where it should focus its inspections.

- **Ensuring inspectors are well-positioned and properly trained to adequately oversee maintenance outsourcing:** FAA has approximately 3,865 inspectors located in offices throughout the United States and in other countries. FAA inspectors must oversee both domestic and foreign aspects of air carriers' maintenance operations—a task made more difficult by the rapidly changing aviation environment. The pace of these changes makes it imperative for FAA to maintain a sufficient number of inspectors to perform safety oversight. By 2010, 44 percent of the workforce will be eligible to retire. However, maintaining an adequate workforce is only one of the challenges FAA faces with its inspectors. For example, FAA does not have a process to determine the number of inspectors needed and where they should be placed. Until FAA develops an effective staffing model, it will not be able to make the most effective use of its resources. FAA must also ensure that its safety inspectors are sophisticated database users with knowledge of system safety principles and an analytical approach to their work.

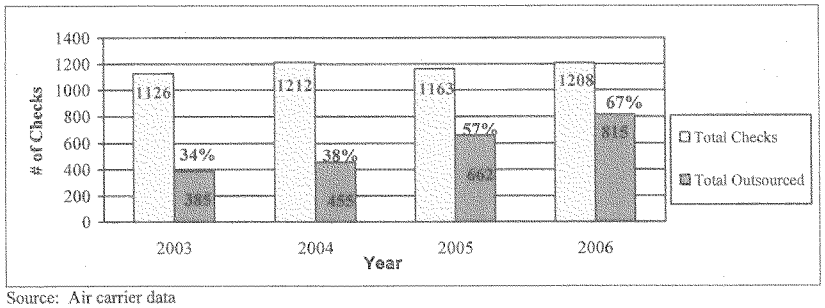
Now, I would like to discuss in more detail some of the changes occurring in the industry; I will then turn to the areas I would like to focus on this morning.

[3] OIG Report Number AV-2006-031, "Review of Air Carriers' Use of Non-Certificated Repair Facilities," December 15, 2005.

Recent Trends in Outsourcing

At the request of this Committee, we are conducting a review of the type and quantity of maintenance that air carriers are outsourcing. We plan to issue a report on this review later this year. We are finding that the amount, or quantity, of maintenance that air carriers outsource to domestic and foreign repair facilities has continued to climb. Further, the work that U.S. air carriers outsource includes everything from repairing critical components, such as landing gear and engine overhauls, to performing heavy airframe maintenance checks, which are a complete teardown and overhaul of aircraft. As shown in figure 2, nine major air carriers[4] we reviewed increased the percentage of heavy maintenance they outsourced to certificated repair stations from 34 percent in 2003 to 67 percent in 2006.

Figure 2. Percentage of Heavy Airframe Maintenance Checks Outsourced for Nine Major Air Carriers From 2003 to 2006



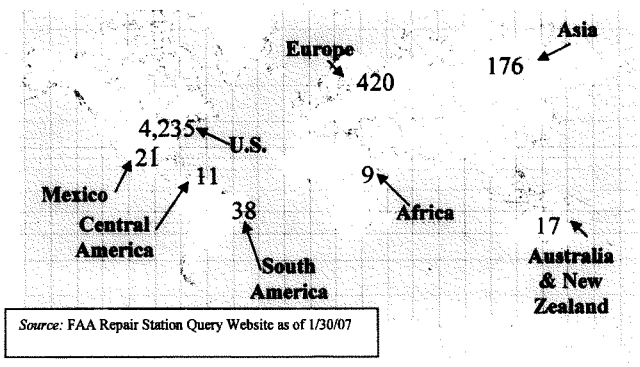
Source: Air carrier data

Of the heavy maintenance outsourced by the nine carriers in 2006, 35 percent was sent to foreign outsourced maintenance providers, up from 21 percent in 2003. The trend in outsourcing is significant and underscores the need for FAA to ensure that it has accurate information on where critical maintenance is performed so it can target its inspection resources.

[4] The carriers represent a cross-section of nine of the largest network and low-cost air carriers and included AirTran Airways, Alaska Airlines, America West Airlines, Continental Airlines, Delta Air Lines, JetBlue Airways, Northwest Airlines, Southwest Airlines, and United Airlines. Because American Airlines, the largest U.S. air carrier, has retained its heavy maintenance as opposed to making a significant shift to outsourcing, we did not include it in our review.

As shown in figure 3, external repair facilities certified by FAA are located worldwide. A facility can obtain an FAA certificate when FAA has verified that the facility has the equipment, personnel, manufacturers' maintenance instructions, and inspection systems necessary to ensure that repairs will be completed using FAA standards. These facilities are referred to as repair stations. There are currently 4,235 domestic and 692 foreign FAA-certificated repair stations available for use by U.S. air carriers.

Figure 3. Locations of FAA-Certificated Repair Stations



In addition, there are approximately 900 repair facilities in Canada that could be used by U.S. air carriers. Under a reciprocal agreement with the United States, Canadian officials certify and monitor operations at these facilities. FAA provides oversight of work performed on U.S. aircraft. At least two major U.S. carriers use Canadian facilities to perform heavy airframe maintenance. As discussed later in our testimony, air carriers also use domestic and other foreign non-certificated repair facilities to perform aircraft maintenance.

FAA has assigned a portion of its inspector workforce to verify that foreign facilities used by U.S. air carriers continue to meet FAA standards. As shown in table 1, FAA has 103 International Field Office inspectors. Of these 103 inspectors, approximately 66 inspectors are located abroad (i.e., Germany, England, and Singapore).

Table 1. FAA International Field Office Inspectors and Their Areas of Responsibility

International Field Office (IFO)	Number of Inspectors	Area of Responsibility	Number of Foreign Repair Stations
Dallas IFO	4	Mexico	21
Frankfurt IFO	17	Europe (excluding the United Kingdom), Africa, and the Middle East	294
London IFO	45	United Kingdom	163
Miami IFO	13	South America, Central America, & The Caribbean	49
San Francisco IFO	20	Australia, New Zealand, Japan, Korea, Philippines, Fiji, Taiwan, and other Asian-Pacific Island Nations	62
Singapore IFO	4	China, Hong Kong, India, Indonesia, Malaysia, Singapore, Thailand, and other Asian-Pacific Nations	103
TOTAL	**103 Inspectors**		**692 Repair Stations**

Source: FAA; data are as of January 30, 2007.

FAA recognizes the challenges it faces with the increased use of aircraft maintenance repair facilities and has taken a number of steps to improve its repair station oversight. For example, beginning in September 2006, FAA brought on-line an automated risk-based oversight system for these facilities. This is a noteworthy accomplishment; however, more work needs to be done if FAA is going to make the most effective use of this system and its inspection resources.

FAA must continue its efforts to implement risk-based oversight systems. The trend toward outsourcing is not limited to aircraft maintenance. Aircraft and engine manufacturers are increasingly implementing their own form of outsourcing. Rather than build the majority of their aircraft within their own facilities using their own staff, manufacturers now have large sections of their aircraft built by domestic and foreign part suppliers. For example, 1 major U.S. manufacturer uses major parts and components from close to 1,200 domestic and foreign suppliers to manufacture its aircraft. In fiscal year 2003, FAA recognized the changes occurring in the aviation manufacturing industry and revised its oversight to a more risk-based approach. However, the system was not designed to address the increasingly prominent role that

aircraft part and component suppliers now play in aviation manufacturing. We plan to report on this important issue later this year.

Advancing FAA's Risk-Based Oversight Systems

FAA has taken important steps to move its safety oversight for air carriers and repair stations to risk-based systems. These systems are designed for inspectors to use information obtained from analysis of data to focus oversight on areas posing the greatest safety risks. Since 2000, we have monitored and reported on FAA's progress in implementing these systems. Risk-based oversight should significantly enhance FAA's ability to focus its inspections; however, we have identified a number of concerns that FAA must address to continue advancing the programs.

FAA's Risk-Based Oversight Approach for Air Carriers Needs To Be More Flexible and Comprehensive

FAA introduced its risk-based oversight system for air carriers, the Air Transportation Oversight System (ATOS), in 1998. We have always supported ATOS because the essential design of the system is sound. In using ATOS, inspectors are to focus oversight on areas posing the greatest safety risks based on analysis of data, such as air carrier operations and maintenance information.

ATOS was a major shift from FAA's old inspection programs, which focused more on compliance with regulations and inspections in designated areas regardless of the level of risk. For example, in FAA's old oversight process, inspectors could conduct hundreds of inspections of one air carrier even if no significant problems were found. With ATOS, inspectors can obtain analyses on air carriers' in-service maintenance failures. Using this data, inspectors can focus their inspections on the specific areas that led to the maintenance problems, such as engine failures, rather than performing multiple inspections of the air carriers' fleet.

FAA initially implemented ATOS at the 10 largest air carriers and did not expand the program beyond this group of carriers until 2003. When first implemented, inspectors did not widely accept ATOS as the best way to conduct oversight. In particular, inspectors were concerned that under ATOS they were unable to spend enough time on-site at air carriers. Also, inspectors thought that the ATOS inspection checklists were too broad to provide useful information for risk analyses. In June 2005, we reported[5] that FAA inspectors had difficulty using ATOS to respond to rapid changes that air carriers were making to reduce costs, such as the increased use of external repair facilities. We found that FAA needed to improve the following processes:

[5] OIG Report Number AV-2005-062, "Safety Oversight of an Air Carrier Industry in Transition," June 3, 2005.

- Monitoring and conducting trend analysis of major air carrier changes—most network air carriers were making similar changes, but FAA only focused on those that were in or near bankruptcy.

- Identifying risks in air carrier systems, prioritizing inspections, and shifting inspections to areas of greater risks. At the time of our review, inspectors for five air carriers did not complete 26 percent of their planned inspections—more than half of those not completed were in areas where inspectors had identified risks.

Events during the August 2005 Northwest Airlines mechanics strike underscored the need for FAA to strengthen the flexibility and comprehensiveness of ATOS to permit inspectors to respond to air carrier changes. Northwest's mechanics initiated a strike against the airline rather than agree to newly proposed contract terms. In response, Northwest hired replacement mechanics and increased its use of outside (contract) mechanics and maintenance facilities; however, it only hired approximately 1,400 mechanics to replace its previous internal staff of about 4,400 mechanics and relied more extensively on outside maintenance providers.

FAA responded quickly in developing a plan to monitor the impact of these changes. However, rather than use ATOS, FAA inspectors abandoned the system in favor of a more simplified checklist, which they believed could be used to more quickly gather the information needed to identify risks associated with the strike. Early inspection reports disclosed deficiencies in replacement mechanic training—FAA inspectors identified at least 121 problems related to replacement mechanics' lack of knowledge or ability to properly complete maintenance tasks and maintenance documentation.

However, these problems were documented in more than 800 individual, manually prepared inspection reports rather than in the automated ATOS database. The manager of the FAA office responsible for oversight of Northwest told us that the ATOS data collection tools (checklists) were not specific enough to capture the data that inspectors needed. In addition, he stated that parts of the ATOS process, such as evaluating data quality, would be too time consuming. This demonstrates that FAA inspectors did not see ATOS as flexible and comprehensive enough to meet their oversight responsibilities during significant air carrier changes.

In March 2006, FAA issued new inspector guidance to aid inspectors in evaluating air carrier changes and reviewed field office risk assessments to ensure that inspectors were using ATOS to prioritize inspections. FAA must continually monitor inspector compliance with this new guidance. By the end of this year, FAA plans to complete ATOS implementation at all air carriers—currently, only 57 of the 118 commercial air carriers are subject to this oversight system. As more air carriers are added to the system, effective use of ATOS to prioritize inspections will become even more critical.

FAA Must Ensure That Inspectors Are Effectively Using Its New Risk-Based Oversight System for Repair Stations

In July 2003, we reported that FAA oversight had not shifted to where the maintenance was actually being performed. Instead, inspectors continued to focus inspections on in-house maintenance. For example, inspectors completed 400 inspections of in-house maintenance at 1 air carrier but only 7 inspections of repair stations. This occurred even though this carrier contracted out nearly half of its maintenance that year.

Further complicating FAA's ability to perform oversight of repair stations is the fact that two groups of FAA inspectors monitor aircraft repair stations; however, at the time of our review, neither group placed adequate emphasis on these facilities as part of their surveillance. FAA's district office inspectors have primary responsibility for conducting repair station inspections but they typically only inspect repair stations once or twice a year. Although FAA's certificate management office inspectors periodically inspect repair stations as part of their responsibility for oversight of their assigned air carriers, these inspections are infrequent and do not include a review of the work the repair station performs for other customers. In addition, we found instances where district office and certificate management office inspectors did not share the inspection results with each other.

We also reported that 138 repair stations in Germany, France, and Ireland were not inspected by FAA at all. Under a bilateral agreement with the European Joint Aviation Authorities, FAA permits foreign authorities to inspect FAA-certificated repair stations on its behalf to prevent duplicative inspections and reduce the financial burden on foreign repair stations. However, FAA did not have an adequate method to monitor the surveillance performed by other authorities. For example, most of the inspection files we reviewed that FAA received from the foreign authorities were either incomplete, written in a foreign language, or otherwise difficult to comprehend.

Since our 2003 report, FAA officials have worked closely with the aviation authorities of other countries to improve the surveillance they perform on FAA's behalf. However, we are concerned that FAA is still not regularly visiting the facilities in the countries where agreements exist with other aviation authorities. For example, FAA inspectors for 1 air carrier had not visited a major foreign engine repair facility even though the repair station had performed maintenance on 39 (74 percent) of the 53 engines repaired for the air carrier. In addition, the FAA international field office inspectors for this facility had not conducted any spot inspections of this facility in 5 years.

Nevertheless, FAA has made significant progress in improving its repair station oversight. The most important improvement is development of a risk-based oversight approach for FAA-certificated repair stations. FAA cannot provide continuous

oversight of every maintenance facility. The new risk-based system was developed to assist inspectors in targeting resources for both repair station oversight and for oversight of air carriers' maintenance outsourcing programs. For example, inspectors are now required to review 15 areas within repair station operations to obtain a baseline assessment of the facility. Using the information from this inspection, inspectors can focus their inspections on risk areas identified at the facility. Further, the information generated from this oversight will be available for review by all FAA inspectors to assist them in targeting their inspections more effectively.

Under FAA's old inspection system for repair stations, inspectors were instructed to perform one inspection of each facility per year and could review any aspect of the facility's operations. Inspectors were not required to provide detailed information on the areas they inspected or the issues identified. As shown in table 2, FAA has initiated a number of other efforts that will enhance its oversight of FAA-certificated repair stations.

Table 2. FAA Repair Station Initiatives

Initiative	Description	Status
Enhanced Repair Station Oversight System*	A risk-based, standardized oversight system for repair station and air carrier outsourcing surveillance.	**Completed** (beginning in fiscal year 2007)
Quarterly Utilization Report*	Reports that identify maintenance providers that air carriers and repair stations use for the majority of their critical repairs.	**Completed** (This was implemented as a voluntary reporting program in fiscal year 2007; however, because the reports are not mandatory, this does not fully address our recommendation.)
Team Inspections*	Annual in-depth repair station inspections conducted by FAA repair station inspectors and air carrier inspectors.	**Completed** (beginning in fiscal year 2006)
Rulemaking on Air Carrier Manuals for Outsourcing	This rule would require specific language in air carriers' manuals pertaining to outsourced maintenance, such as policies, procedures, and instructions for maintenance completed by external repair facilities.	**FAA is developing the rule.**
Proposed Rulemaking on Repair Stations	This rule would revise the repair station ratings and require repair stations to establish a quality program. It also specifies instances in which FAA can deny a repair station certificate (e.g., when a company has had one revoked).	**Comment period extended to April**

**Initiated as a result of our 2003 report.*
Source: FAA

However, these initiatives are either recently implemented or still in development. To avoid repeating the types of implementation problems experienced with ATOS, FAA needs to ensure that its inspectors are well-trained on the new systems and initiatives for repair stations. Furthermore, FAA will need to verify that inspectors are effectively implementing the new processes; however, FAA cannot effectively implement a risk-based system for oversight of aircraft maintenance if it does not know where the maintenance is performed.

Determining Where the Most Critical Maintenance Is Performed and How it Should Be Monitored

In 2003, we reported that FAA inspectors did not have effective procedures for determining which FAA-certificated repair stations air carriers were using to perform maintenance that could impact the airworthiness of the aircraft. Air carriers are required to provide, and FAA must approve, a list of substantial maintenance providers, which are repair stations that can conduct major repairs on their aircraft. These procedures are designed to provide inspectors with information on where air carriers intend to send their substantial maintenance.

However, the information that air carriers provide may not represent the facilities the carrier actually uses or show the quantity of work the carrier sends to each facility. For example, we identified one foreign repair station designated as a substantial maintenance provider for a major U.S. carrier that had not conducted any significant maintenance work for the air carrier in almost 3 years. FAA's surveillance should be better targeted to those repair stations that carriers use regularly. The air carriers' information also does not include the non-certificated facilities that they use.

In December 2005, we reported that FAA was unaware of air carriers' use of non-certificated repair facilities to perform critical maintenance.[6] These facilities are not covered under FAA's routine oversight program and do not have the same regulatory requirements as repair stations that obtain certification from FAA.

FAA's New Process for Identifying Certificated Repair Stations That Air Carriers Use To Perform Maintenance Is Not Effective

In response to our July 2003 report, FAA implemented a system in fiscal year 2007 for both air carriers and repair stations to submit quarterly utilization reports. These reports are supposed to show the quantity, or volume, of critical repairs that maintenance providers perform for air carriers and repair stations. However, submission of this information is not mandatory. FAA's Flight Standards staff advised us that a new rule would be required to make volume reporting mandatory

[6] In our December 2005 report, we identified critical repairs as those repairs categorized as Required Inspection Items by each air carrier. Required Inspection Items are mandatory maintenance activities that, due to the importance to the overall airworthiness of the aircraft, must be independently inspected by a specially trained inspector after the work is completed.

and that they believed air carriers would provide the requested information voluntarily. The first reports were due to FAA by December 31, 2006. Our review of FAA records for nine air carriers showed that as of March 23, 2007, seven of the nine air carriers had submitted quarterly utilization reports. FAA must ensure that air carriers continue to file these reports in a timely manner.

Our primary concerns with the reports are that air carriers do not include all repair stations that provide critical component repairs and that FAA does not validate the information provided. Air carriers are only requested to report the top 10 substantial maintenance providers used—the ones most frequently used per quarter. The reports do not have to include repair stations that perform high-volume, critical component repairs on parts such as wheels and brakes because FAA's definition of substantial maintenance does not include component repairs.

In addition, FAA inspectors are not required to validate air carrier data. Without some form of data verification, FAA cannot be assured that air carriers have provided accurate and complete information. If the reports are to be an effective means for FAA to track and accurately target those repair stations that carriers use the most, a more thorough process will be needed.

FAA Needs To Develop a Mechanism To Identify Non-Certificated Repair Facilities Performing Critical Maintenance for Air Carriers

In December 2005, we identified air carriers' use of repair facilities that have not been certificated by FAA to perform critical and scheduled[7] aircraft maintenance and reported that FAA was unaware of this practice. Air carriers have used non-certificated facilities for years, but it was widely believed that these facilities principally performed minor aircraft work on an as-needed basis.

Prior to our review, FAA officials advised us that non-certificated repair facilities only performed minor services, such as welding of parts or changing tires. However, we determined that non-certificated facilities can and do perform the same type of work as FAA-certificated repair stations, including both scheduled and critical maintenance. We identified 6 domestic and foreign facilities that performed scheduled maintenance and 21 that performed maintenance critical to the airworthiness of the aircraft.

We are especially concerned that air carriers rely on non-certificated facilities to perform scheduled maintenance tasks that the carriers can plan for well in advance. For example, we identified an air carrier's use of a non-certificated facility to perform work on three aircraft that was required for compliance with an FAA Airworthiness

[7] This is maintenance that 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).

Directive. Other critical repairs we found included adjustments to flight control systems and removal and replacement of an engine.

FAA does not know how many non-certificated maintenance facilities air carriers currently use because it does not maintain a list of the facilities. We sampled 19 air carriers, and all 19 were using non-certificated facilities to some extent. We identified over 1,400 non-certificated repair facilities performing maintenance, and more than 100 of these facilities were located in foreign countries.

Permitting non-certificated facilities to perform critical maintenance is an important issue that FAA must address. To do so, FAA must first determine which non-certificated facilities perform critical and scheduled maintenance and then decide if it should limit the type of work these facilities can perform.

FAA Cannot Rely on Air Carrier Oversight and Training Programs for Non-Certificated Repair Facilities

FAA permits air carriers to use non-certificated facilities as long as the work is approved by an FAA-certificated mechanic. However, this is not an adequate substitute for an FAA-certificated repair facility because non-certificated facilities do not have the safeguards and controls for maintenance repair and oversight that is required at FAA-certificated facilities. Differences in FAA requirements between these two types of maintenance operations are illustrated in table 3.

Table 3. Differences in Requirements for FAA-Certificated Repair Stations and Non-Certificated Facilities

FAA Requirement	Certificated Repair Station	Non-Certificated Repair Facility
Annual FAA Inspections	Required	Not Required
Quality Control System	Required	Not Required
Reporting Failures, Malfunctions, and Defects	Required	Not Required
Designated Supervisors and Inspectors	Required	Not Required
Training Program	Required	Not Required
Facilities and Housing*	Required	Not Required

*If authorized to perform airframe repairs, certificated repair stations must have facilities large enough to house the aircraft they are authorized to repair.

Source: OIG analysis

We found that air carrier quality systems under which these repairs were performed were not as effective as they should have been. This was particularly true in the areas of mechanic training and oversight of these facilities.

Non-certificated repair facilities are not required to employ designated supervisors and inspectors to monitor maintenance work as it is being performed. Relying solely on the expertise of an individual mechanic to ensure that repairs are completed properly is an inadequate control mechanism. In our view, this is the reason FAA requires added layers of oversight, such as designated supervisors and inspectors, in its certificated facilities.

The importance of this issue became evident in the aftermath of the January 2003 Air Midwest crash in Charlotte, North Carolina. Independent contract mechanics, certificated by FAA and working for a non-certificated company, completed maintenance on the aircraft the day before the accident. The mechanics incorrectly adjusted a flight control system that was ultimately determined to be a contributing cause of the crash—this work was approved by an FAA-certificated mechanic employed by the non-certificated company. The National Transportation Safety Board determined that contributing causes of the accident included Air Midwest's lack of oversight of the work performed by mechanics working for the non-certificated entity and lack of FAA oversight of Air Midwest's maintenance program.

In our December 2005 report, we also stated that neither FAA nor the six air carriers we visited provided adequate oversight of the work performed at non-certificated repair facilities. The air carriers we reviewed relied primarily on telephone contact to monitor maintenance performed at these facilities rather than conducting on-site reviews of the actual maintenance work. In contrast, as an added level of quality control, air carriers often assign on-site representatives to monitor the work performed at certificated repair stations.

Despite the differences in quality controls and oversight that exists between certificated and non-certificated maintenance entities, there are no limitations on the scope of work that non-certificated repair facilities can perform. For example, we looked at critical repairs performed under special authorizations at 1 air carrier and found that over a 3-year period, 14 of the 19 (74 percent) repairs were performed at non-certificated repair facilities. Examples of the work performed include landing gear checks, lightning strike inspections, and door slide replacements. In contrast, repair stations that are certificated by FAA are limited to completing only the specific maintenance tasks that FAA has determined the facility is capable of performing.

Air carrier training programs for mechanics working at non-certificated facilities are not adequate. FAA regulations require air carriers to have mechanic training and oversight programs for work performed by external maintenance facilities. However, we found significant shortcomings in air carrier training and

oversight programs for non-certificated facilities. As shown in table 4, mechanic training ranged from a 1-hour video to 11 hours of combined video and classroom training; one carrier only required mechanics to review a workbook.

Table 4. Air Carrier Training*

Carrier	Training Provided
A	Less than an *1 hour* of video training
B	*1.5 hours* of classroom training
C	*11 hours* of combined classroom and video training
D	*3.5 hours* of combined classroom and video training
E	Maintenance procedures provided in a *workbook* that had to be signed and faxed back to the air carrier
F	*3 to 4 hours* of combined classroom and video training
G	*4 hours* of classroom training
H	*3.5 hours* of classroom training

*Training information obtained either from air carriers' or non-certificated facilities' records.

FAA agreed that it needs to place more emphasis on the training and oversight that air carriers provide to non-certificated facilities and that it needs to gather more information on the type of work these facilities perform. FAA's efforts in this area are still underway. If FAA is to achieve the planned improvements in oversight of outsourced maintenance, it will need to obtain definitive data on where air carriers are getting the maintenance performed, including critical and scheduled maintenance work done at non-certificated repair facilities so that it can focus its inspections to areas of greatest risk.

Ensuring Inspectors Are Well-Positioned and Properly Trained To Adequately Oversee Maintenance Outsourcing

In June 2005, we reported that FAA needed to ensure that its inspection workforce was adequately staffed. Currently, FAA has approximately 3,865 inspectors located in offices throughout the United States and in other countries. As shown in table 5, these inspectors are responsible for a vast network of operators and functions.

Table 5. FAA Inspectors' Workload

Commercial Air Carriers	118	Flight Instructors	90,555
Repair Stations	4,927	FAA Designee Representatives	11,000
Active Pilots	744,803	Aircraft	347,326
Approved Manufacturers	1,738	FAA-Licensed Mechanics	320,293

Source: FAA

FAA will never have enough inspectors to oversee every aspect of aviation operations. However, FAA faces challenges in balancing potential inspector retirements with the number of inspectors it is able to hire. This year, 28 percent (or 1,085 of the 3,865) of the current inspector workforce will be eligible to retire. By 2010, 44 percent of the workforce will be eligible to retire. To counter this trend, FAA requested funding to hire an additional 203 aviation safety inspectors in its fiscal year 2008 budget submission. In 2006, FAA hired 538 inspectors, but lost 226 (181 to retirements and 45 for other reasons). However, even if FAA receives funding and is able to hire additional inspectors, it will need to know where to place inspectors to make the most effective use of its resources.

FAA Needs a Process To Determine Inspector Placement

Maintaining an adequate workforce is only one of the challenges FAA faces with its inspectors. FAA does not have a process to determine the number of inspectors needed and where they should be placed. FAA has made at least two attempts to develop a staffing model to determine the number and best locations for its inspectors. However, neither of the two models provided FAA with an effective approach to allocate inspector resources. At the request of this Subcommittee, in September 2006, the National Research Council completed a study of FAA's current methods for allocating inspector resources.[8] This study validated the concerns that we have expressed in many of our past reports—that FAA's current method of allocating inspectors is antiquated and must be redesigned to effectively target inspectors to those areas of higher risk.

During our review of FAA oversight of financially distressed and low-cost air carriers, we found inconsistencies in the way inspectors were allocated among field offices. For example, two FAA offices had the same number of inspectors assigned to

[8] Study completed by the National Research Council of the National Academies, "Staffing Standards for Aviation Safety Inspectors," publicly released September 20, 2006.

oversee the air carriers in their geographic areas even though one of those carriers had twice as many aircraft and 127 percent more flights than the other.

We also found that inspectors were not assigned to the locations where they were needed most. For example, FAA currently has 1 operations inspector assigned to Des Moines, Iowa, where his assigned air carrier averages only 6 flights per day but does not have an operations inspector assigned to Chicago, Illinois, where the same air carrier averages 298 flights each day.

Conversely, there are other FAA inspectors that have substantial workloads. For example, in 2003, we identified 1 inspector that was assigned oversight for 21 repair stations, 21 agricultural operations, 12 service–for-hire operators, 3 general aviation operators, 2 helicopter organizations, and 1 maintenance school. At that time, inspectors in the 9 field offices we reviewed were responsible for oversight of an average of 9 repair stations and 14 other operations.

Until FAA implements the Council's recommendations and develops an effective staffing model, it will not be able to determine where inspectors should be placed to make the most effective use of its resources. The Council reported that the changing U.S and global aviation landscape has important implications, which are expected to be key drivers of future inspector staffing needs. For example, outsourcing of aircraft maintenance, FAA's shift to a system safety oversight approach, and the attrition and retirement of safety inspectors are all important changes that must be considered in determining staffing needs.

Further, the Council stressed that FAA must ensure that it has safety inspectors that are sophisticated database users with knowledge of system safety principles and an analytical approach to their work. This is a different skill set from the one that supports on-site inspections of air carrier, aircraft maintenance, and aircraft manufacturers operations.

FAA advised us that it fully intends to implement the Council's recommendations but that it must first procure the services of an independent contactor to obtain the most effective staffing mechanism. However, completion of this process is likely years away.

Mr. Chairman, that concludes my statement. I would be pleased to address any questions you or other Members of the Subcommittee might have.

Testimony by

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To the Committee on Transportation and Infrastructure's Subcommittee on Aviation

Hearings on the Federal Aviation Administration's Oversight of Outsourced Air Carrier Maintenance

March 29, 2007

The End of the Castle Building Era

The state of the MRO industry in the US

By Ray Valeika

The Old (today's) MRO Model

Over thousands of years people built castles to repel attacks from a variety of enemies and weapons. And until the invention of gunpowder they were very effective and we still marvel at them today for their massiveness and beauty. However the artisans who built them found themselves out of work with the invention of gunpowder. The artisans were no less skilled but their skill was no longer needed. Throughout history we see these dramatic changes where great skill and craftsmanship are superseded either by technology, the whim of the public or geopolitics. We have witnessed these changes many times and now we are witnessing them in one of the great skill professions of the United States- aircraft maintenance.

Most profound changes take some time to occur. Aviation however, because of its dynamism, creates change in a much shorter time frame. Paradoxically, change can be destructive to some but also change can create an opportunity for others. I believe New York Times columnist Tom Friedman in his book 'The World Is Flat' summarized it aptly, although not necessarily thinking about aircraft maintenance, when he said that "We're entering an era of creative destruction on steroids".

So let's review how aircraft maintenance evolved, devolved and will ultimately resolve as it enters this new era.

The era of the craftsman

The early aircraft maintainers were mostly dependent on their own intuitive skills and/or experience. Because of this, there evolved a true craftsmen mentality whereby skill and knowledge resided in the person and great dependence on individuals resulted. As aviation grew and became more complex and more analytical data was gathered, aeronautical science started to take shape, but most of it focused on design principles rather than maintenance principles. This furthered the flourishing of the maintainer's craftsman mentality. As aircraft started flying longer and over greater distances, the dependence on the unique knowledge and skill of the maintainer blossomed and became ever more critical because communication systems were inadequate and primitive by today's standards and all that was available were a mechanic and his knowledge, in many cases in far-off stations.

This evolved into a system where the airlines themselves had to create a baseline of skill and competence along the lines of the skill and competence of these individuals. So, they hired the best individuals, trained them, and built facilities uniquely suited to the airlines' peculiar requirements and needs. In addition, the aircraft in the early days were not as functional or flexible operationally as they are today, for example, domestic and international airlines had significantly different needs in how they maintained and operated their equipment. Thus from the beginning grew a system where each airline had to create total support for its aircraft

based on the maintenance programs, available skills, and facilities that they would uniquely need.

Through well into the 70's, airlines were, like their craftsman technicians, performing nearly all of their maintenance functions on a stand alone basis. This became entrenched and perpetuated by public perceptions of the mystique of aviation, by the labor groups, and the regulators.

Organized labor of course saw this as an opportunity, using the skill and safety umbrella, to create and perpetuate many non-skilled and non-safety job functions. Additionally, they created unnecessary redundancy by not allowing cross-training and inhibiting cross-functional skills. Thus a very inefficient system was created, and when any change was contemplated, it was vigorously protected by contracts and to some degree by the regulators. This continued unabated since management had little incentive to change the system. But even more insidious was the fact that the maintenance management's pay structure was indexed off the mechanics' pay. So, there was incentive not to change the system.

By the same token, a system of oversight mirroring what was being accomplished at the airlines was implemented by the regulators. In essence, the regulators were mandating industry "best practices". Work ownership rules and scope clauses evolved forcing operators to repair and maintain their own equipment based on fleet size. And going further, the regulators mandated that each airline could only use its own parts on its airplanes and that all airlines must maintain discrete inventories and operating specifications. This forced incredible redundancy on the system and, while it may have made sense early on, it currently has no relevance. Because of these regulatory requirements, contractual commitments, and lack of incentive on the part of management to change, airline maintenance status quo was not only preserved but also ingrained.

This cozy system was unchallenged until well into the 80's and post-deregulation. Consequently, a significant overcapacity of maintenance facilities and staff emerged. Almost all airlines duplicated what all the other airlines were doing. This then set the stage for today's battle of vainly trying to preserve the status quo versus the relentless move towards efficiency and cost cutting in light of the financial condition of the industry.

The emergence of new carriers and more reliable aircraft

There is no specific time or single issue that began challenging this business model, but clearly deregulation created an environment where "new" types of carriers appeared. These carriers did not have the luggage of the past and thus started with more or less a clean sheet as far as self-dependence was concerned. Consequently, they did not need to create the infrastructure that the existing carriers had and, at the same time, they did create a need for maintenance services that most of the established carriers did not require. Early on, many of these fledgling carriers used existing big airline facilities since they were not deemed to be a threat. This shortly migrated to a new trend of maintenance being provided and accomplished by entities other than airlines.

Another factor that precipitated the dissolution of the integrated airline MRO's was the introduction of the second and third generation jet aircraft that created unprecedented levels of reliability. This was especially true of the engines. The introduction of digital electronics is producing cost savings and reliability improvements on the same order as what we have seen in the development of information technology, i.e. Moore's law, whereby we see improvements double every few years. This reliability was further enhanced by well engineered maintenance programs which depend a lot more on analytics than on the pure experience of the maintainer. These aircraft and engine combinations quite simply needed less maintenance. Not only are the aircraft better designed, but they are also better maintained based on more precise maintenance programs that are more data driven. This has altered the state of the craftsman mentality by creating more dependence on systematic data driven processes; an approach that reduces the variability of experience driven processes. A great deal of today's labor strife is the result of resisting the inevitability of these fundamental changes.

The growth of the so-called low-cost carriers and concurrently the inability of the major airlines to control their costs especially that of labor and benefits further eroded their ability to compete and survive effectively. The major airlines being burdened by their build-in infrastructure cost and the incessant escalations of the labor contracts caused by pattern bargaining were unable to sustain themselves effectively and the golden goose started running out of eggs. . Fortunately for the low-cost carriers, they did not have to deal with the entire burden of the past and thus could begin with a much lower cost structure from the start.

Over the past few years this has created an adversarial airline employee model consisting of highly entrenched labor groups trying to preserve anachronistic work rules and management finding opportunities through bankruptcies and their poor financial state to alter many of the previous perceived inadequacies. The result in the US is that many and perhaps most of the airlines are actively pursuing disposal or significant reduction of in-house maintenance. All union and non-union legacy carriers, many now in bankruptcy, have slashed staffing, services, and facilities, creating a large surplus of mechanics. This is a classic case where labor, whose incentive is to create more jobs, and management, whose objective is to run a good business, have not found a common ground or framework for peaceful coexistence!

The cost and revenue dichotomy

In this environment of high fixed costs and overhead, the straw that is truly breaking the back of the legacy carriers is the proliferation of the internet and low cost carriers which makes it very difficult to control pricing. The old advantages of the in-house reservation systems have rapidly diminished, and the lack of pricing control is perhaps the final chapter in fostering the change of the traditional airline business model. A business cannot survive when cost of the product and the revenue it generates are independent variables.

This then forms the basis for today's airline business reality. The airline's response to this dilemma is to cut costs, and mostly the costs that are somewhat controllable are labor costs. To succeed in cost cutting, however, is exacting a huge toll on the social fiber of the employees and breaking down the long established infrastructure, especially in maintenance.

The fragile financial condition of airlines and the subsequent intense focus on cost reductions is driving a cataclysmic change in the maintenance business. Once this process reaches its inevitable conclusion there will be a new business model.

Over the past few years the legacy airlines have shrunk their in-house maintenance capabilities. While this has occurred the non airline MRO providers in the US have not fully grasped the opportunities being created to integrate maintenance and maintenance services. The MRO business today is very fragmented and runs on a job shop basis. It is a system that is lacking direction and is currently organized and operated on a strictly functional level. That is, there are engine repair facilities, there are component repair facilities, there are line and hangar maintenance support groups etc., etc. The airline and or airplane business doesn't run well on a functional basis. It is too complex. It is ultimately most effective when there is a summation of information, labor, operations, inventory, supply chain and other skills integrated into a single whole.

This fragmented approach served a market which evolved from the major carriers filling only segments of their needs while maintaining in-house capability in most other areas. Quite often these were the segments which did not have contractual constraints. So over the years, airlines nipped away and outsourced pieces of their business and new companies evolved supporting those needs. As new airlines started these businesses grew more robust. Today, in the United States, there is an across the board migration by major airlines of airframe maintenance to third party providers, a great deal of the engine and component capability was previously outsourced already and clearly more is occurring now, and many of the line and other support functions are also slowly migrating away from in-house airline accomplishment.

There are plenty of providers but most play minor roles and today in the United States this fragmented business does not have a dominant player with the exception of someone like General Electric in engines services. The big difference, however, is that while in the past most of these providers were local, today they are global. There is an explosion of maintenance services especially in the Far East where labor still wields a large cost advantage. This fragmentation when viewed in light of the exodus of airline in-house maintenance is creating a new business model and a new opportunity balanced with some inherent risks.

This is a very large business. Current airline maintenance expenditures world wide are a 38 billion dollar business. Today world wide there are about 17 thousand plus commercial jet aircraft. In the next ten years there will be over 25 thousand commercial jet aircraft, a fifty percent growth, which will generate maintenance revenues of over 60 billion dollars. In addition as commercial variants are introduced into military fleets there will be even larger growth opportunities.

The stage is being set for an explosive growth. But this growth will manifest itself differently in different parts of the world. Maintenance is clearly being viewed as a growth opportunity by many airlines in the Far East, especially in China, where new facilities and capabilities are growing. The Middle East is one of the fastest growing airline regions with very large development and investment in maintenance infrastructure. India with its vast resources of

highly skilled labor will definitely be a player. Not to be overlooked is the vast resource of engineering talent in Eastern Europe which is capable and cheap by our standards. Europe is well along a path of developing a maintenance service business balanced between airlines and independent MRO's. In the US, which represents about 40% of the market, there is very little recognition or systematic plans to take advantage of this opportunity. The obsession with labor issues and costs has blinded many to this opportunity.

The new MRO business model

The new model that will emerge, especially in the US, will be an entity which will obviously still perform maintenance, but will shift dramatically from the current airline in-house maintenance to a new non-airline maintenance service provider or providers. However, to be effective the current haphazard system of maintenance service organizations will be dramatically revamped

What airlines had created was an integrated system approach of providing total support, albeit for themselves. What is currently happening is the disintegration of that system. The path that airlines are taking today is dispersing the various functions and no one is amalgamating them into a one-stop shop. As the airlines outsource more of their technical requirements, the need for oversight becomes ever and ever more onerous. Where in the past all the work was accomplished in only one or two locations with common standards and training; now it is being dispersed to a variety of facilities and locations, in some cases with different languages and cultures. A new maintenance provider will emerge which will in some ways resemble the old airline models by integrating many of the functions but be independent of any airline and without the burden of the old infrastructure and the interdependencies of that structure. The new entity will provide a totally integrated package of maintenance services, but not necessarily from one facility or from one organization. The new entity will manage maintenance no matter where it is accomplished. The glue that will bind this new model will be the information technology that will cross all the boundaries of location. The driver for this will be both efficiency and, in some ways more importantly, a need to control effectively the maintenance process. Dispersing leads to complexity which can lead to errors which leads to a desire on the part of the regulators for better controls which leads to one-stop shops! But one stop shop may not mean one location or one provider.

The political, labor, and regulatory environment

It is now clear that the business is changing; it is clear that it needs to change; it is clear that airline labor recognizes that change is inevitable; it is clear that a new model will evolve; and it is clear that so far nobody has grasped the full impact of this change.

The key to this business certainly will be safety, quality, compliance and, of course, an ability to provide competitive costs. What is evolving today from all the fragmentation is a need to review the regulations in view of this new reality. Clearly the maintenance providers will have to take more of the oversight responsibility that now singularly rests in the airlines. The providers may have to take on more of the maintenance program responsibilities and reliability

monitoring than what is occurring today. The current operating specifications may well require a more symbiotic relationship with maintenance providers such as shared engineering functions and transparent changes to the maintenance programs based on both operator and provider experience. The new players will unequivocally have to give the FAA confidence that they posses rigorous systems to assure compliance. The FAA will need to focus their approach to oversight with more fundamental understanding of data with less dependence on a hands-on inspections. The FAA will need to focus on trends, on analysis of those trends and on dispatching highly trained audit teams to the facilities which are not performing to expectation. While some random inspections have value and may need to continue, I view the future need being more driven by factual rather than anecdotal information. I see a need, similar to what CDC does when a disease breaks out, for qualified FAA teams to do in-depth hands-on review of packages of work and actual on-site inspections like super NASIPs when data indicates shortcomings.

The industry is now in the limelight with a variety of issues regarding outsourcing, and clearly the FAA will be under greater scrutiny from the labor unions and legislators to do something about it. If there is an incident or accident, then the drive for controls and standardization will greatly intensify. The current maintenance providers and airlines will come under much more intense oversight.

The risk to this new model is that the maintenance landscape is changing over a very broad spectrum of technology, politics, regulations and regulators, control, geography, and mind set. It all is occurring concurrently, and thus it clouds, considering the many facets of the business and the many stakeholders, what kind of holistic outcome will result. There are many disconnected and disjointed efforts focusing only on labor, or regulation, or technology, or ownership, or a myriad of others. The danger of this fragmented or disjointed approach is that programs and initiatives will be introduced which will not be effective and lots of effort will be spend on fixing various isolated symptoms resulting in lack of a coherent solution for a changing system.

To achieve any type of success in the future, MRO business will greatly depend on the FAA's ability to control and regulate today's business reality. Another complicating factor may be the fact that other governmental bodies than that of the US may start driving the regulations. So any attempts and efforts to show that someone in fact can integrate and provide a safer, more compliant product will at first be very difficult but very welcomed. Today's providers are so engrossed in labor and labor rates in their functional areas that they are not focusing on the risk or opportunity of what I believe is the new reality. This reality is that regardless of who does the work there will be a need to control the information flow, to control the standards and to have a holistic view of individual aircraft.

Information-the unifying theory

Most of the efforts today by the maintenance suppliers are about lowering labor cost, especially the rates, and some modest efforts to improve a broken business model. As yet nobody has put together a coherent business plan which creates an integrated support structure. So there is considerable wasted activity with woefully few results.

The industry does not have nor is it developing an integrated database to capture information across many providers of the condition of the equipment, its status in the maintenance program, or real time information of the parts that are on the airplane or even in the various facilities. If someone could provide data and systems to the regulators which effectively manage the maintenance process, it will become the standard from which all other maintenance systems will evolve. Information is the Rosetta stone that unlocks the mystery of maintenance and opens the windows to a great business opportunity.

Manage maintenance services.

The effective MRO provider of the future will both manage and may perform maintenance. It is important to understand that the management of maintenance versus performance could be at different companies and different locations even on different continents. The future provider will require some maintenance capability but may integrate other providers through joint ventures and partnerships. The idea is to integrate maintenance through information technology and either perform it or have it performed. This new world view of maintenance will have no geographic boundaries. It is conceivable that this venture can manage on-shore and off-shore maintenance provided the standards and oversight are maintained and verified through information technology.

The uniqueness of the individual airline maintenance programs, the ability to improve its processes through investment in engineering talent, the capital investment in state of the art equipment, have been challenged in the US airline system and in many cases are being replaced by companies providing services and labor and facilities. The OEM's (original equipment manufacturers) are looking for opportunities to further consolidate and capture the after service market. The airlines a rapidly shedding all the peripheral activities and becoming more and more marketing entities distinguished by their service brands.

This transition is well on its way. It does not necessarily bode a good or bad outcome but it does bode some chaos and uncertainty as all change does. The process will not be reversed. Maintenance is a big business and getting bigger. It will offer new opportunities for value creation as well as challenges. It will require more oversight, more human factors understanding, greater cultural sophistication, greater reliance and understanding of what information the data is providing. It will completely change record keeping and compliance, it will change inventory ownership, and it will be more multilingual, multi-cultural and much more geopolitical. It will require the same unbending discipline to excellence, compliance, and safety that has created this great transportation system.

And most of all it will take vision and an unerring focus to change from reminiscing about the past to executing the dreams of the future. There is no reason why these dreams can and should not be realized by a robust aircraft maintenance providers in the US.

U.S. House of Representatives
Committee on Transportation and Infrastructure

James L. Oberstar
Chairman

David Heymsfeld, Chief of Staff
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Washington, DC 20515

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April 19, 2007

Ms. Mary Walsh - AGC60
Assistant Chief Counsel for Legislation Staff
Federal Aviation Administration
800 Independence Avenue, S.W. - Room 923I
Washington, D.C. 20591

Dear Ms. Walsh:

[redacted]

Attached are questions for Mr. Nicholas Sabatini to answer for the record. I would appreciate receiving his written response to these questions within 14 days so that they may be made a part of the hearing record.

Sincerely,

Jerry F. Costello
Chairman
Subcommittee on Aviation

JFC:ss/pk
Attachment

March 29, 2007
Subcommittee on Aviation
HEARING on
"The Federal Aviation Administration's Oversight of Outsourced Air Carrier Maintenance"

Questions for the Record
To:

Mr. Nicholas Sabatini,
Associate Administrator for Aviation Safety
Federal Aviation Administration

Mr. Sabatini, for the Committee to have a better understanding of how inspections are carried out for foreign repair stations, I ask that you submit detailed data about foreign repair station inspections. For example, I note that FAA's Singapore International Field Office (IFO) has 7 inspectors to oversee 103 repair station facilities. I would like to know:

- Where are these facilities located?
- For each facility, can you provide for me the dates of the last two inspections, duration of the inspection, the number of inspectors utilized for each inspection, and what the findings were?
- If anomalies were found at any of the repair stations, how were those anomalies corrected?
- When is the next planned inspection for each of these facilities?

I would ask you to respond to the same question for the following IFOs:

- Frankfurt, which has 15 inspectors and 103 repair station facilities.
- London, which has 11 inspectors and 161 repair station facilities.
- Miami, which has 16 inspectors and 53 repair station facilities.
- Dallas, which has 5 inspectors and 21 repair station facilities.
- San Francisco, which has 13 inspectors and 61 repair station facilities.

AVIATION SAFETY/FLIGHT STANDARDS - REPAIR STATION INSPECTIONS AND RESULTS

Name of Repair Station	Location of the Repair Station-City	Location of Repair Station-Country	Date of Last Inspection	Date of Inspection Prior to last	Duration of Inspection - in hours	Number of Inspectors	Discrepancies Found During Last Inspection	Discrepancies Addressed	Proposed date of next Inspection
1-Source Aero Services S A	Schimatari	GR	7/30/2006	6/30/2005	58	2	parts, forms/records, quality manual, calibration, OEM Manual & Procedures	Corrective Action Plan Accepted	7/7/2007
Aar Aircraft Component Services	Nd Hoofdorp	NL	2/5/2007	5/8/2006	38	3	OEM Manual & Procedures, tooling, parts, use of current data, facilities	Corrective Action Plan Accepted	2/9/2007
Abelag Aviation S A	Zaventem	BE	10/20/2006	9/30/2005	46	2	Capabilities List, Personnel Roster / Employment Summary, Forms/Records, Calibration, Tooling, Repair Station Manual, Shelf Life	Corrective Action Plan Accepted	10/7/2007
Abu Dhabi Aviation	Abu Dhabi	AE	5/1/2006	5/15/2005	55.5	2	Inspections / Receiving Inspections, Personnel Qualifications, Personnel Roster / Employment Summary	Corrective Action Plan Accepted	5/7/2007
Aero Sekur S P A	Aprilia	IT	4/16/2007	5/5/2006	22	1	Forms/Records, Quality Manual, Training Program/Records, OEM Manual & Procedures	Corrective Action Plan Accepted	4/8/2007
Aeromaritime Mediterranean Ltd	Hal Far	MT	6/28/2006	7/21/2005	29	1	Repair Station Manual, Company Procedures, Training Program/Records	Corrective Action Plan Accepted	6/7/2007
Aeroplex Of Central Europe	Budapest	HU	3/29/2007	2/6/2006	67	2	None		3/8/2007
Aerospace Engineering Group S L	Vizcaya	SP	11/8/2006	9/25/2005	25	1	Capabilities List, Repair Station Manual, Personnel roster/Employment	Corrective Action Plan Accepted	11/7/2007
Agusta S P A	Varese	IT	1/10/2007	1/25/2006	24	1	OEM Manual & Procedures, Forms/Records, Parts, Personnel roster/Employment, Capabilities List	Corrective Action Plan Accepted	1/8/2007
Agusta S P A	Cascina Costa	IT	1/12/2007	4/12/2006	35.25	2	Parts, Forms/Records, Repair Station Manual	Corrective Action Plan Accepted	1/8/2007
Alm Air	Nairobi	KE	3/2/2007	6/16/2006	39.75	1	Training Program/Records, Quality Manual, Capabilities List, Personnel roster/Employment	Corrective Action Plan Accepted	3/9/2007
Air Repair B.V	Hoofddorp	NL	2/28/2007	2/6/2006	16	1	None		2/8/2007
Airbus	31707 Blagnac Cedex	FR	2/9/2007	2/13/2006	60	2	Special Exemptions, Parts, Repair Station Manual, Quality Manual, Segregation of Parts, Inspections / Receiving Inspections	Corrective Action Plan Accepted	2/8/2007
Airbus	31061 Toulouse Cedex	FR	2/7/2007	1/13/2006	30	1	Special Exemptions, Quality Manual, Training Program/Records, Capabilities List	Corrective Action Plan Accepted	2/8/2007
Airbus Deutschland Gmbh	Hamburg	GM	6/24/2007	6/11/2006	77	2	Record Package Review Component Work Order No 9109685 has the following discrepancies: There is no evidence in the work package of a preliminary/receiving, or hidden damage inspection being performed. (Reference: Title 14, Part 145.211(d)(iii)). In the Airbus Spares Support Service Purchase Order 673391 and AIPO 47536891 it states: AIQI 2.24.040.00 (Return of Components after Rework, Overhaul, Modification or Repair), which was one of the Quality Procedures required by Special Exemption 6029 for the return to service will be used. This AIQI was Cancelled 06.06.05 and replaced by AP2100 (Using the Authorized Release Certificate). This Airbus Procedure only talks about the release of new parts and is not adequate as a replacement for used parts as written. Component Work Order No 9109934 has the following discrepancies: There is no evidence in the work package of the Disassembly, Cleaning, and Reassembly steps of parts required by the CMM, before the parts were sub-contracted to Buxtahuda, and reassembled after they were returned. (Reference: Title 14 CFR Part 145.211).	Corrective Action Plan Accepted	6/8/2007

AVIATION SAFETY/FLIGHT STANDARDS - REPAIR STATION INSPECTIONS AND RESULTS

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							Unable to verify how FAA required preliminary, and hidden damage inspections are being performed, and documented when part is sent directly to sub-contractor and back to the owner, without coming to the repair station. (Reference: Title 14 CFR Part 145.211). Line Maintenance 1. Uncontrolled Special tools and rigging pins were stored in the power and static ground box at Station 7 of the Delivery flight line. Tool control for these items has not been transferred from the old delivery facility. Recommend these tools be returned to the tool control section for proper accountability and control in accordance with your Quality Plan. Sub Contractors 1. It appears that there is a second scrapping process that is not addressed in the Scraping QVA dealing with electronic/electric parts.		
Airbus Espana S L	Getafe Madrid	SP	10/26/2006	NOTE 1	120	3	Repair Station Manual, Capabilities List, OEM Manual & Procedures	Corrective Action Plan Accepted	10/7/2007
Airbus France Components	Toulouse	FR	2/14/2007	2/17/2006	35	1	Special Exemptions, Forms/Records, Repair Station Manual, Personnel roster/Employment Summary, Inspections/Receiving Inspections	Corrective Action Plan Accepted	2/8/2007
Airbus France Nantes Bouguenais	Nantes, Cedex 01,	FR	10/3/2006	11/17/2005	50	2	Records Systems Numerous radome work orders do not have component maintenance instructions for measuring radio-electrical resistance as per Airbus Standard C-0325. Tools and Equipment A composite repair test equipment labeled "ANITA 079701" with a local number of 934-231-0017 was found to be out of calibration. This unit is not being tracked in the calibrations system per RSM/QM. Parts and Materials Airbus CMM 53-51-21, revision 7 dated August 1, 2005, used in the repair of nose radomes, requires the use of MEK-material no. 11-003. The repair station is using Diestone (DLS) which is not listed in the allowable list of materials from CMM 57-61-23, page 3. Additionally the repair station is not using adhesive kits, number EC2216B/A and acetone 11-583 that is listed in CMM 53-51-21 and could not provide equivalency for the items being used.	Corrective Action Plan Accepted	10/7/2007
Aircraft Accessories And Compone	Jeddah	SA	3/28/2007	3/8/2006	28	1	Repair Station Manual, Training Program/Records, Company Procedures, OEM Manual and Procedures	Corrective Action Plan Accepted	3/8/2007
Aircraft Power Maintenance	Wevelgem	BE	12/1/2006	12/9/2005	31.5	1	Calibration, OEM Manual & procedures, Facilities, Forms/Records, Shelf Life	Corrective Action Plan Accepted	12/7/2007
Alenia Aermacchi S P A	Venegono Superiore	IT	1/26/2007	1/14/2006	39	1	Shelf Life, Parts, OEM Manual & Procedures, Use of Current Data, Calibration	Corrective Action Plan Accepted	1/8/2007

AVIATION SAFETY/FLIGHT STANDARDS - REPAIR STATION INSPECTIONS AND RESULTS

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Alenia Aeronavali Spa	80144 Napoli	IT	11/23/2006	10/21/2005	219	5	Records Systems Inspection of FAA Form 337s found block 6C for the certificate number also showing Airframe & Powerplant as an authorized rating. However, Alenia Aeronavali S.p.A. does not hold a Powerplant rating. Ref: 14 CFR 43.9, Alenia Repair Station Manual (RSM) Appendix A. Inspection of non-routine work cards found corrections made on various cards without having the authorized personnel's initials and date for the corrections made (i.e. non-routine ND03009). Ref: RSM Chapter 12. On job card ATC-TEST, work order 72OH29 for aircraft N576FE, operation number 040 is not applicable based on the type of equipment used to complete the test. However, no statement explaining the use of the N/A for this section is provided in the form. Ref: Alenia Operating Disposition DO-G2-056-C. Housing and Facilities The aircraft lubricant storage area at the Afitech facility is not properly identified or in a clean state.	Corrective Action Plan Accepted	11/7/2007
							Additionally, a five gallon container of hydraulic fluid and various grease containers were left open. Ref: 14 CFR 145.103. Inspection of the scrap program identified the following items: Scrap facilities area was not secured. Multiple parts did not have any identification tags, or the parts were tagged, which indicated that they may be serviceable. The scrap area is separated with identification on the outside, which indicated that the parts being stored inside were awaiting final disposition from the owners. This was not the case, as multiple parts were being stored in those areas waiting to be scrapped. The scrap metal container located at the Afitech facility is not properly identified. Ref: 14 CFR 145.103, 145.109; Alenia Operating Disposition DO-G2-060-E. The SAFT Component Maintenance Manuals require specific environmental conditions prior to performing maintenance. However, the battery shop is not equipped with a calibrated humidity and/or temperature indicator as required. The repair station could not provide supporting documentation for the type and traceability of lubricant found in the shop. Ref: 14 CFR 145.109. Two ESD sensitive smoke detectors were located in Hangar 15 without the proper ESD protection on the connector. Ref: 14 CFR 145.103. A container of Primer Green BAC 452 was located in Hangar 15 with an expiration date of October 16, 2006. Ref: 14 CFR 145.109. Maintenance Process The tail cone for aircraft N397FE was removed to facilitate other maintenance and the removal of the # 2 engine. This task left an exposed engine bleed air duct, which was not protected. Ref: 14 CFR 145.205. The aircraft located at the Afitech facility was not properly grounded. Ref: 14 CFR 145.109, 145.205. Work order #28262, non-routine #1108, had no inspector buy-back signature/stamp. Ref: 14 CFR 145.211. Quality Control Internal quality audits are based on a sampling of quality systems – independent of hangar, shop, etc. location		

AVIATION SAFETY/FLIGHT STANDARDS - REPAIR STATION INSPECTIONS AND RESULTS

Name of Repair Station	Location of the Repair Station-City	Location of Repair Station-Country	Date of Last Inspection	Date of Inspection Prior to last	Duration of Inspection - in hours	Number of Inspectors	Discrepancies Found During Last Inspection	Discrepancies Addressed	Proposed date of next Inspection
							Without the documentation of where these sampling audits where conducted, there is a possibility some locations within the repair station will not be sampled on subsequent audits. Ref: 14 CFR 145.211. Contract Maintenance Alenia's current procedures for contracting out items to non-FAA repair stations require an Alenia quality buy-back inspection. A review of the non-routine job cards indicated that work was performed by non FAA certified repair station without Alenia performing an inspection prior to using parts for the repairs (i.e. non-routine ND03009). Ref: 14 CFR 145.215, RSM Chapter 10.		
Alenia Aeronavali Spa	30030 Venezia-Tessa	IT	11/30/2006	11/21/2005	220	6	Records Systems Inspection in hangar facility C found job card E-8-5410-7-4307 for right hand engine mount inspection, which also showed compliance with the appropriate paragraphs (Paragraphs F1, F2, F3 and F5) for AD 80-11-05. One of the AD required inspection paragraphs (F4) was not listed on the job card. This job card also states to fill out the appendix B of the packet, which also documents the AD compliance that should be sent to the owner of the aircraft. This appendix B form has stamp blocks for paragraph F1 through F5 (including paragraph F4) for this AD. This job card is still open. Ref: 14 CFR 43.9. Inspection in hangar facility C found job card 25B5501, for the forward lower cargo compartment inspection, shows an inspector sign off for an area that was not completed. This was corrected on the spot. Ref: 14 CFR 43.9. Review of the FAA Form 337's for aircraft N302FE and N556FE shows limited specialized service in the certification block 6C. Alenia Aeronavali S.p.A. does not hold a specialized service rating. This is contrary to Alenia Aeronavali S.p.A. repair station's manual, page A-15. Ref: 14 CFR 145.201. Housing and Facilities The battery shop is not properly segregated for unserviceable, in-process, serviceable, and cleaning of parts area. Ref: 14 CFR 145.103. The repair station does not appear to have capabilities to accomplish composite repairs that require a clean room such as DC-10 SRM 51-62-01. Ref: 14 CFR 145.103(a). Tools and Equipment Bead Blasting Shop: TO 1-1-691 requires stainless steel to be vacuum/venture blasted at 60-75 psi, but the gauges on the venture blasting equipment are not calibrated. Ref: 14 CFR 145.109(b).	Corrective Action Plan Accepted	11/7/2007

AVIATION SAFETY/FLIGHT STANDARDS - REPAIR STATION INSPECTIONS AND RESULTS

Name of Repair Station	Location of the Repair Station-City	Location of Repair Station-Country	Date of Last Inspection	Date of Inspection Prior to last	Duration of Inspection - in hours	Number of Inspectors	Discrepancies Found During Last Inspection	Discrepancies Addressed	Proposed date of next inspection
							Aircraft weighing kit p/n 64001-03, s/n M1563C, have a calibration date of July 6, 2006. The calibration certificate listed one of the standards used (607756) with a calibration due date of April 2, 2006. This situation rendered the unit unserviceable since an expired standard was used to calibrate the weighing kit. Ref: 14 CFR 145.109. Parts and Materials Bead Blasting Shop: One tube of CEROX SR-XII polish was found with out traceability. Another tube of the same polish had a traceability label and included an expiration date. Ref: 14 CFR 145.109, 43.13. Welding Shop: Two cans of expired Ardrox were found in a cabinet. Ref: 14 CFR 145.109, 43.13. Parts storage bins in Hangar C have aircraft parts being stored with no traceability. Ref: 14 CFR 145.109, 43.13. Training Welding Shop: AWS D17.1:2001 required proof that a specific weld (material and position) has been accomplished in the last 6 months or the qualification expires in two years. It could not be shown that the two welders currently approved have accomplished the material and position welds within the past six months.		
							Certification of the two welders currently approved by the repair station is based on superseded AMS-STD-1595, which allows a five year recurrent certification. Ref: 14 CFR 145.151(d). Maintenance Process Work order JJ5P7, card number 8-2550-7-2354-8G, was reviewed in the paint shop and involved reworking cargo handling end stops. Both steps G1 and G2 were signed off as completed by shop personnel. However, steps G1c and G2c required re-identifying the part number as a result of the rework, which were not accomplished as signed. Ref: 14 CFR 43.9, 145.109, 145.205. Work order 00031973 has a recommended action to repair a main cargo compartment air conditioning duct in accordance with DC-10 SRM 51-62-01, page 20/21 and MM 25-00-00-8. SRM 51-62-01 has requirements for temperature and humidity control, but the area used does not meet those requirements. In addition MM 25-00-00-8 does not apply to repair for this duct. It was later explained that both references were incorrect and that the correct procedure is actually Boeing Standard Overhaul Practices Manual 20-20-05. Contract Maintenance The vendor list does not mention SI Technologies as an approved vendor. This company calibrated the aircraft weighing kit p/n 64001-03, s/n M1563C, the unit is previously mentioned under the Tools and Equipment section in this letter. Ref: 14 CFR 145.109(b).		
Alitalia Maintenance Systems S.P.A	Fiumicino-Rome	IT	11/9/2006	12/6/2005	39.5	1	1. A review of maintenance records indicate that some documents in the records have blocks that are not filled in, or annotated with the term "N/A". 2. The repair station uses the term "Limited Serviceable" to describe the condition of some parts. The definition of this term is not clear and does not appear to exist in the company manual system.	Corrective Action Plan Accepted	11/7/2007

AVIATION SAFETY/FLIGHT STANDARDS - REPAIR STATION INSPECTIONS AND RESULTS

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							A review of maintenance records indicate that some documents in the records have blocks that are not filled in, or annotated with the term "N/A". 2 The repair station uses the term "Limited Serviceable" to describe the condition of some parts. The definition of this term is not clear and does not appear to exist in the company manual system. It is recommended that common industry terms be used to avoid confusion. . 3. Roster of FAA Repair Station inspectors, certifying staff, management, and supervisory personnel are lacking the following: A clear and comprehensive policy and procedure. (Recommended elements are in FAA AC-145-9.) Clear identification of FAA Repair Station personnel (It is a consolidated document.) Summaries of employment for all persons on the roster performing work for the Past relevant employment with names of employers & periods of employment. Scope of present employment Reference: 14 CFR, Part 145.161.	1. The calibration was performed at an yearly interval because this complies with the Manufacturer's specifications for the unit serviceability, as stated in a letter from the Manufacturer (NO 3683/CND-LR/mlc) dated 20/oct/2006). However from now on the unit (P /N TFINEW) will be calibrated every six months to comply with ASTM 1444-05. 2. The Wheels Shop personnel has been re-trained about the correct recording of all of the tests required by ASTM 1417. Record forms shall be updated accordingly. 3. The oven temperature indicator has been re-checked and put back into service 4. Supervisors have been notified about the correct procedure. Moreover, it is under study a modification to the information system used to issue the job cards, to force the choice of the product release before issuing the job cards itself. This modification will take place within the first quarter of 2007. 5. The router references directly to the CMM,. that includes; in the repair section, the instruction to apply Alodine.	
								The document used to describe the process of application of Alodine in Alitalia Servizi is PSA V -8, issued by Materials & Processes Engineering. It is a general process docume11t, and makes refers~ce to OEM process documentations such as DPS 9.45, MIL-C-5541, BAC 5719, BOEING SOPM 20-43-03, Messier-Dowty SPM 20-00-01. However; Engineering dept. shall make more evident the reference to the process document to be used. (router review and/or cross-correlation table between processes and documentation) 6. The tools have been sent to the calibration department 7. The safety requirement of tagging and putting clips on circuit breakers has been re-addressed to all maintenance personnel with a written communication. Moreover, the job card "A/C Set Up Jobs" which addresses the need to pull the C/Bs at the starting of works shall be modified to include a clear warning about the need to put tags and clips as necessary, and according to AMM.	

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Alitalia Servizi S P A	00050 Fiumicino	IT	11/28/2006	12/10/2005	88	3		. 8. A review has been performed within all hangars for all shelf life items. All of the expired ones have been removed and discarded. The personnel has been reminded about the already existing prohibition of keeping any kind of material in the cabinet or toolboxes' (the only place allowed to keep material in the hangars is the local tools shop). 9. All personnel involved in Delta line maintenance has been immediately committed to a review of Delta' procedures. Moreover, an "additional refreshment training session has been requested to Delta. Evidences of the training shall be provided to FAA FRA-IFO as soon as available, soon after the training session. The refreshment training shall include a review of what procedures/links must be available at FCO: currently, for each flight, Delta MCC provides Qn real time) to Alitalia Servizi's personnel all instructions (tech. documents) for returning aircraft to service, therefore some specifics documents/procedures are not available" or accessible to our station (inhibited links). 10. This is due to the fact that most of people employed in Alitalia Servizi do not have previous relevant working experience in the aeronautical environment However, a line shall be added in such cases on the Summary Employment to reflect this case. 11. the existing MOE 2.9.3.2 "Preliminary Inspection" procedure shall be revised to include additional details on how to perform a preliminary inspection. 12. Procedures shall be updated to include a notification from the Production areas to Quality, after twelve months of continuous. 13. During 2006 the manual has been only partially updated with Temporary Revisions. However a new issue (revision 21) is foreseen by the end of 2006. 14. The current procedure on MOE 2.6.5 requires the area supervisors to conduct an assessment of the equivalence of the standard equipment available with respect to that required by the TCH. The current procedure has been enforced and reminded to all area supervisors. 15. A review of all data and test software developed by third parties has been initiated. Missing evidences of OEM approval shall be gathered 16. The Tools & Equipment Engineering department is evaluating the tools available on the market. According to MOE procedures, an internal Technical ~Specifications shall then be issued within January 2007 to buy the tool.	11/7/2007

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Alsalam Aircraft Company Ltd	Riyadh	SA	3/21/2006	4/6/2005	59	2	1. Inspector Qualifications - A review of Mr. Merle Nestro and Mr. Dulip S. Dissanayake training records do not reflect Repair Station Manual training. 2. A review of Mr. Nestor personnel records does not reflect training on CFR 14 regulations. 3. Life Limited Items The storage department is required to record the temperature of the freezers on a daily basis. However, it was noted that several freezers had their indicator out for calibration and the documentation reflects that there were no temperature reading taken during the time period. 4. Expiration dates of several cans of Magnaflux products, located in the NDT area, could not be determined. Shelf life label AM&M Q-L-0007-1 is not being utilized for these items. Ref: 14 CFR 145.109, RSM Section 7.3 5. Calibration A review of documentation reflecting the accomplishment of a calibration does not reflect that the items were calibrated to a standard acceptable to the FAA. 6. A large diameter crimper set was not identified under the tool program to ensure calibration of the article. 7. Micrometer, S/N MS-01, located in	Corrective Action Plan Accepted	NOTE 3
Arab Organization For Industrializa		EG	4/13/2006	6/7/2005	59	2		The IMP will be revised to update the outdated forms and the related procedures; Indicate the procedure of evaluating the equivalent tools (09QPR 350) Responsible: Quality Assurance Mgr. Target Date: July The indicated "release to service" certificates (FAA form 8130-3) will be amended. Also the procedure NO . 10 QPR032 (FAA form 8130-3 filling procedure) will be amended, to precise completion of blocks in the FAA form 8130-3 according to FAA order 8130-21 Responsible: Engines Quality Control Mgr. Target Date: July 2006 The reference page will be amended, in the mentioned traveler, to be page 306. The tool will be manufactured according to P&WC drawing. Target date: Done July 2006 Every batch with receiving bill number should be separated/instruction should be issued. Updating should be made either by contacting the original manufacturer or through the internet. Note: The last revisions, that we have in AOI-EF, are permanent Rev. No. 12 (Feb. 81) and temporary rev. 72-12 dated 02.19.1991	4/7/2007
							Inspection Procedures Manual The inspection procedures manual should be revised to meet current regulations. Several procedures in the manual are inadequate and outdated forms are referenced in the manual. The inspection procedures manual does not contain adequate procedures for evaluation of equivalent tools. Reference FAA AC 145-9 paragraph 4-2(e)(1). Work orders FAA Form 8130-3 tracking 20750263 for anti-ice valve was signed by someone other that the person whose name was printed in block 22. Also block 19 was not checked to indicate that work was performed in accordance with FAR Part 43. Some completed 8130-3 forms have more than one entry in block; this contrary to the FAA order 8130-21, in that only one term may be entered in block. An engine anti-ice was overhauled by the accessory shop; the part was modified and subsequently issued a new part number, although a modification was made, there was no information on the FAA form 8130-3 to reflect the actions taken.		

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							PT6 Engine Shop Traveler 72-20-00-02 (2-10) says to inspect oil tank adapter P/N 3026648 per page 307/308 paragraph 5.I. This is the incorrect reference; 5.I is for expansion plug inspection. Correct reference would be page 306, paragraph 5.H. Special tool uncrimper P/N PWC50597 was not available. It was stated that the tool in use was equivalent to the original, however this was not supported by any information from the manufacturer. 501-D22 Engine Shop Miscellaneous hardware was found in a cabinet without traceability information. Current manuals were not available to support repair of parts that the repair station is currently rated for. Examples: Current engine overhaul manual for 501-D22 was not available. The manual available in the shop was revision 12 dated Feb. 16, 1981. The latest revision appears to be revision 14 dated Sept. 1995. An FAA release was accomplished on January 5, 2004 for a T Rear Bearing Oil Seal P/N 6897635; reference 8130-3 tracking number 2-56-10-235 using revision 14 dated Sept. 1995 supplied by the OEM. This could be contrary to FAR part 43.13(a). CT 64 Engine Shop Traveler CT64-A12-05-00 calls out an inspection of fuel nozzle assembly per paragraph 207 of SAI-409 A12 but paragraph 2-7 has no information about the inspection. Paragraph 2-8 has inspection requirements and includes an NDT requirement. It was stated that the NDT was not required on repair, only overhaul, but this was not clear on the traveler paperwork. Vacuum pump gauge and clock not calibrated although this gauge was used to make an airworthiness determination. Library No procedure is in place to check manuals for latest revision. Non-Destructive Testing Magnetic Particle lab: the white light meter is required to be calibrated semi-annually, the current tag indicates that the task is been accomplished at a year interval. This is contrary to ASTM E1417		
							Radiography The shop is still using outdated MIL Specifications (453) as reference material. This specification was replaced by ASTM E1742. Some of the required daily checks were not accomplished. This could be contrary to ASTM E1742.	The indicated traveler will be amended to cover the mentioned remarks. The gauge will be calibrated. Responsible: CT64 planning engineer & Engines Quality control mgr. & calibration mgr. Target Date: done May 2006 The original manufacturer will be contacted, at least once a year to provide the manuals master list to check the manuals updating. Responsible: Quality Assurance Mgr. Target Date: Done The calibration will be done every six months as required by the documented procedure. Responsible: Calibration Manager Target Date: Done The MIL spec No. 453 will be removed from the shop. The instruction No. NDT 20 00 will be verified and amended to include all daily checks which are required by ASTM E1742. Responsible: NDT Mgr. Target Date: Done June 2006	
Arabian Aircraft Services Company	Jeddah	SA	4/5/2007	4/7/2006	56	2	Repair Station Manual, Quality Manual, Training Program/Records, Capabilities List, OEM Manual and Procedures, Personnel Qualifications, Forms/Records, Air Carrier Procedures, Parts	Indicate the procedure of evaluating the equivalent tools (09QPR 350)	4/8/2007
Arkia Aircraft Maintenance	Tel Aviv	IS	7/13/2006	5/30/2006	29.2	2	None		7/7/2007

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Asp Avionics Nv-Sa	Genk	BE	1/16/2007	2/24/2006	36	2	Repair Station Manual, Quality Manual, Capabilities List, OEM Manual and Procedures, Personnel Qualifications, Forms/Records, Facilities, Calibration, Inspections/Receiving Inspections	Target Date: July	1/8/2007
Atitech S P A	Naples	IT	7/26/2006	7/10/2005	146	4	1. Manuals The flight control balancing shop is using outdated Atitech manuals that reference Boeing SRM 55-40-1, 55-20-2, and 57-50-1, all at revision 96. The Atitech manual library lists the SRM at Revision 97. The Atitech Quality Control Manual also states on page 2.IV.1.5 that the TEM department is responsible for a yearly check that all Organizational Maintenance data is all up to date. 2. Housing and Facilities Housekeeping throughout the facility does not appear to be of a standard that meets the company's policy. The repair station does not appear to have suitable racks, trays, stands and other segregation means for the storage and protection of all articles undergoing maintenance. For example: Landing gear components removed for access were improperly positioned on a metal cart. There was metal to metal contact, uncapped lines and exposure to potential damage. 3. Tools and Equipment Caliper in the Machine shop was over 1 year overdue calibration.	Corrective Action Plan Accepted	7/7/2007
							Samplings of the system for ensuring materials used in maintenance are under the repair stations control revealed deficiencies. Specifically: Boxes of uncontrolled hardware and consumable products were found in locked cabinets on the hangar floor. The boxes contained a mix of several-hundred new and used screws, fasteners, clamps, etc., as well as O-rings, and assorted items. The locker also contained a variety of shelf-life limited materials, some of which were not labeled with expiration dates. 4. Technical Data Several volumes of uncontrolled and expired data are located in cabinets on the hangar floor. Interviews with technicians indicate the data (Wiring manuals) is intended for reference only. However, the data is not identified as such or located apart from the maintenance area to prevent its use. When personnel were asked why the outdated information was valuable as a reference when the same information was available electronically and up-to-date, no one could provide a reason for keeping this information.		

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							5. Quality Control The quality audits do not appear to include checks of contents of lockers and cabinets in the hangars to look for uncontrolled data, parts and materials. FAA inspection of these areas revealed unauthorized storage of these items as noted in this letter. 6. Parts and Materials Expired shelf life was noted on various items throughout the repair station. The shelf-life control program does not appear to be closely followed and/or monitored at the shop level. Examples include the following: Two expired containers of ARALDIT 5052 and one container of LPS was located in the stores MTE area. The expired material was not removed, despite someone having previously signed a confirmation receipt of removal provided by stores management. 7. Personnel Records Repair station personnel rosters do not include the "scope of present employment" as required by 14 CFR, Part 145.161(a)(4)(iv). Additionally, the Repair Station and Quality Manuals do not address this requirement.		
							8. Maintenance Processes The repair station does not have a policy or procedure to "collar" and "tag" circuit breakers as required by the aircraft maintenance manual. An example of this requirement is in the MD-80 AMM, volume 20-50-06, page 201. A spot check of maintenance data and associated task cards used for MD-80 maintenance indicated the technicians are not consistently printing all relevant pages of the procedures. There is not a formal policy and procedure to establish positive control and disposition of printed data both during and after its use. 9. Contract Maintenance Contracts for maintenance functions performed on an article by a non-certificated provider do not include a provision to permit the FAA to make an inspection and observe the performance of the non-certificated person's work on the article.		
Atzan - Aerospace Technologies	Gadera	IS	NOTE 2	8/5/2005	29.2	2		Corrective Action Plan Accepted	8/7/2007
Austrian Airlines	Vienna	AU	8/31/2006	9/2/2005	110	4	1.Work orders (WO's) R2246893, R2189231, and R2303946 from the Accessory Workshop were selected for review. The central finding regarding the WO's was the description of work performed. One of the requirements in MOE referenced 2.13.5 requires a "detailed report of maintenance carried out" be made on the "Shop Report". This requirement was not being met in the above listed WO's. There is a digital "Repair Report" that does give a description of work performed and is being used in parrel with the shop report. There is no reference to this form on the "Shop Reports" for the above listed WO's. There are plans in the future to develop procedures for the use of the digital "Repair Report". To comply with the MOE procedures in the interim period a detailed report of work carried out must be made on the "Shop Report". 2. Pamphlets and Code of Federal Aviation Regulations pertaining to the hydrostatic testing shop are not listed in the library revision system. Currently the library only provides the date to the shop but does not monitor their revision status. 3. The oven located in the wheel and brake shop is not being	Corrective Action Plan Accepted	8/7/2007
Avio S P A	Rivalta Di Torino	IT	3/17/2006	5/20/2005	76	2	Repair Station Manual, Quality Manual, Company Procedures, Staffing, Personnel roster/Employment, Capabilities List, OEM Manual and Procedures, Personnel Qualifications, Facilities	Corrective Action Plan Accepted	3/7/2007

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Avio S P A	Naples	IT	12/12/2006	12/19/2005	74	2	1. The FAA Form 337 for a JT8D engine, S/N 708591, incorrectly references another engine, S/N 708476, as being properly maintained in block 8 of the form. 2. The FAA Form 8130-3 for a JT8D engine, S/N 735767, has no certification statement selected in block 19 of the form. 3. Work order translations to the English language could not be located for several maintenance tasks. Please advise what the status is for the translation of the Pratt & Whitney 100 series Assembly and Disassembly cards. The target day referenced in the corrective action letter from last year stated a completion date of December 2006. 4. The Repair Station Manual has various references to CFM 56 engine operations, which are no longer authorized on the FAA Operations Specifications, paragraph A003. 5. The Repair Station Manual makes reference to the "Certified Personnel List", which identifies certifying staff personnel and could not be located. However, a "List of Qualified Personnel" was located and in use to identify certifying staff personnel.	Corrective Action Plan Accepted	12/7/2007
							6. The Repair Station Manual improperly requires the FAA approval for revisions to the Capability List. 7. In test cell 6 two areas, forward of the engine inlet, the wall was deteriorating and small pieces of gravel had accumulated. 8. The manufacturer's limitations for load cell calibration were exceeded 19 out of 100 values without discrepancies noted or corrective action taken. This was noted on the Rapporto di Taratura Strumenti form between the dates of Nov. 15 – Aug. 5, 2006. 9. There was a large quantity of unserviceable parts, not identified, stored in the JT8 Marshalling area in close proximity to serviceable parts. These parts should be quarantined. 10. While reviewing the assembly instructions for a PW 100 hot section, the consumable table listed PWC 06-009, anti seize compound, for application on the HP stub shaft retaining nut. Further review allowed for the use of an environmentally friendly lubricating paste annotated as PWC 06-036 or 036A. The commercial equivalent of PWC 06-036 is Molykote P-37. Avio is substituting the Molykote P-37 with a mix of Molykote Z and engine oil. There is no authorization for this substitution nor are there any mixing instructions available for this application. 11. In the main gearbox assembly area the required assembly oil is kept in an unmarked container. 12. Observation Only: A Training Program Manual has not been submitted for FAA approval. 13. Two items listed as "Returned to Service" on the company's Activity Report are not authorized for maintenance per the company Capability List. 14. The Turco 4181 solution located in a cleaning tank in the Accessory Shop was identified as beyond the manufacturer's limits twice in October 2006, without discrepancies noted or corrective action taken. 15. While in the cleaning area, a review of SPOP 319 was made. This document requires the application of PMC 3052-8 dry blast media which is 320 Aluminum Oxide grit. However, Avio is using 240 Aluminum Oxide grit without documented approval.		

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Aviointeriors S P A	Latina	IT	3/5/2006	3/4/2005	20	1	Repair Station Manual, Quality Manual	Corrective Action Plan Accepted	3/7/2007
Bedek Aviation Group	Tel Aviv	IS	4/13/2006	7/14/2005	420	8	1. Certificate Requirements During the visit to the propeller shop a review was made to determine Bedek's ability to maintain the Hamilton Standard 54-H60 propeller. Technical data in the form of the Hamilton Standard Maintenance Manual, P5056-1, was reviewed for currency. The shop could not (and did not know how to) demonstrate whether the manual was current. The first Special Tool (Control Test Stand) inspected was found to have been modified and did not belong to the shop. No engineering data was available to determine whether the test stand still met performance standards. There has not been any civil activity in this shop for several years, only Military maintenance. Due to this fact, Bedek repair station has agreed that the Limited Propeller Rating should be removed from the Operations Specifications. 2. Records System Regarding Work order 3882818.6: Several irregularities were noted on the work instruction card # 491012E for a CSD that was overhauled by the component shop.	1. An order was issued for Hamilton Standard Maintenance Manual P5056-1. Components Division Engineering Personnel inspected the Modified test Stand in order to approve it per the new parameters. 2. The shop Technicians underwent a Refresher Training Course, conducted by the Shop Manager and QA personnel, regarding completion of Work Instruction Cards. 3. The Subject Routine Card Was updates 4. The pages comprising Revision #12 was photocopied from the other copy of the Manual, and the subject copy was updated. 5. The calibration interval was changed to six months. The last inspection was performed on 14 May 2006, the next inspection shall be no later than 13 November 2006. 6. We have amended our computer system, which generates FAA Form 8130-3, such that the "default" for Block #9 is now 'N/A', as required. 7. During the Audit, a roster for these employees was prepared and shown to the FAA representative.	4/7/2007
							Specifically, some of the sections in the work instruction card contain boxes entitled "performed or not required". Although the box was checked as "not required", it was noted in the remark that a defect was found. (Item # 33) An area that required the recording of the actual measurement after the accomplishment of a check was left blank. (Item # 66) There were no indication a required task was accomplished. The blocks "Not required / Performed" were left blank. (Item #63) It was noted in some areas where the word "ok" was used as "result", in other areas of similar value it was left blank. 3. APU SHOP (Disassembly shop) A review of routine card # 54-114 for a combustion transition liner, it was noted that the work instructions referenced MIL-STD-6866 as a source document. This document is no longer valid; it has been replaced by ASTM 1417. CMM 49-22-63 was at revision 11; the master revision list was at revision 12.	8. An urgent order was issued (via e-mail) for the current revisions of the C-5 & C-8 CGA Pamphlets. Confirmed receipt of the current revision on the same day. 9. The discrepancy was immediately corrected. The unprotected and unidentified parts of A/C parts were protected and re-identified. The uncontrolled Boeing publications were discarded. 10. The subject parts were identified and appropriate Receiving Tags were attached to them. 11. The incorrect page of the qualification record was corrected immediately. 12. The expired containers were immediately removed from the NDT Department 13. This typing error was corrected immediately 13. This typing error was corrected immediately 14. We have received comments regarding training Program. We shall revise our procedure in order to ensure that it is in accordance with FAA requirements, and we shall forward it to you in the near future. 15. Inspector Moshe Ben Moshe will participate in the next Refresher training course	

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							4. APU Test Cell The instruction manual requires several sensors to be calibrated at a six month interval, the current calibration stickers reflect that the system is being calibrated at a yearly interval. Engine shops. Inspection of the engine shop work orders found the FAA Form 8130-3 block #9 not filled in. This is contrary to IPM section 5 page 8.9 and FAA order 8130.21. Inspection of the work orders found NDT being performed on engines by personnel not on Bedek's inspector roster. Further inspection found the NDT was being performed by Non-FAA certificated persons. Bedek could not provide a current FAA Non-Certificated contractors list. Reference 14 CFR 145.217 (a). NOTE: A revised contract maintenance function list was provided during the inspection and approved by the FAA. Hydrostatic Testing. The shop is currently using CGA Pamphlets C-5, dated 1991 and CGA C-8, dated 1997 as work instructions for the metal cylinders inspection. The current revision for the C-5 is 7-26-05 and the C-8 is 7-27-05.	16. The two-year Refresher Training Program was temporarily delayed, in order to enable implementation of the ERP System. The program shall be continued in October 2006. 17. A shift turnover log shall be implemented in NDT starting from September 2006 for those tasks that are not accomplished in one shift (and require transfer to the next shift). 18. At the time of the Test Cell's upgrading it was decided to delay the engines in the installation area, and thus prevent their being transferred into the "after-test" area, until the completion of this upgrading, in order to avoid pressure in the Engine preparation area. 19. In our procedure TD 10-00-18, dated OCT. 2003, in paragraph 3.2.2. we state: "Bedek Aviation's Group Division Quality Assurance Directors are responsible for ensuring that employee Rosters are updated within 5 (five) business days of a change…". 20. We are carrying out a second review of the Rosters (in the three Divisions), and we shall update them in accordance with the requirements of FAR 145.161.	
							Housing and Facilities A visit was made to the wide body hanger housing N706RB. While touring the hanger several inconsistencies were found to include "request for technical assistance" forms found which were being retained from a previous conversion and not controlled, uncontrolled excerpts from the Boeing maintenance manual in the work area, used parts stored without identification or a reference to serviceability and aircraft lines were found without protective caps. Parts and Materials In the brake shop stores we found that some boxes of brake pads did not have the tags with bar codes and batch numbers attached. Some boxes had the tags lying loose in the box while some were lying on the shelf next to the box. Most boxes were marked correctly with the tag attached to the box. In the same area, a box of brake pads had spilled down the back of the shelf and were lying on the floor. In the brake shop, the qualification record of employee number 61220 failed to list dates of qualification on one page of the record.	21. All the support shops were instructed to check and revise all RSM/AM (IPM – Inspection Procedures Manuals). 22. We have amended our TD 10-03-02, to include the requirement for Inspectors to maintain proficiency when performing their work. 23. In the three Divisions in Bedek Aviation Group we use a large number (hundreds) of forms. These forms are structured such that they contain all the instructions on how to fill them in (they are self explanatory). 24. I issued instructions not to deviate from OEM expiry dates, even if laboratory tests give results that could approve extending an Expiry Date. 25. During 2006 we shall add an Audit to review the Shops' IPM Manuals 26. The Manual was corrected on the samd day (based on the QA Directorate's Master copy). 27. The report was corrected immediately. 28. Please refer to our response in item 'O' of the General Audit Report 29. A two-year refresher Training Program was temporarily delayed, in order to enable implementation of the ERP System. The program shall be continued in October 2006.	
							In the Airframe Divisions' main NDT shop, we found three or more containers of X-Ray film development chemicals that had exceeded its shelf life. The amount of excess time ranged from one month to four years. Personnel Records in The Components Division Management / Supervisor Roster, one employees' ID number was incorrect. This was corrected while on site. Training The employee training program has been submitted for approval, but not yet approved. Training records for Mr. Moshe Moshe, inspection stamp #BAM-43, do not reflect accomplishment of refresher training as outlined in Technical Directives 10-02-01. A review of Components Division training records shows that some employees have not yet received their initial "Refresher & Knowledge Enrichment Course." Technical Directive 10-02-01, section 7, requires this course to be repeated each two years. This section is dated October, 2003. We suggest a review of all divisions training records Maintenance Processes	30. Form WS-CU-185 shall be added to our internal "Intranet" Forms File in the near future. Estimated completion date: 15 September 2006. 31. An order was issued for Hamilton Standard Maintenance Manual P5056-1. Components Division Engineering Personnel inspected the Modified test Stand in order to approve it per the new parameters. 32. An order was issued for Hamilton Standard Maintenance Manual P5056-1. Components Division Engineering Personnel inspected the Modified test Stand in order to approve it per the new parameters. A comprehensive Tooling List and Equivalency Records were also submitted to Engineering for Evaluation and certification. 33. Instructions were issued by the Aircraft Division Quality Assurance Director to photocopy receiving tags, and attach them to all units / pieces of material from the same batch.	

AVIATION SAFETY/FLIGHT STANDARDS - REPAIR STATION INSPECTIONS AND RESULTS

Name of Repair Station	Location of the Repair Station-City	Location of Repair Station-Country	Date of Last Inspection	Date of Inspection Prior to last	Duration of Inspection - in hours	Number of Inspectors	Discrepancies Found During Last Inspection	Discrepancies Addressed	Proposed date of next Inspection
							The Airframe Division NDT shop does not utilize a written shift turnover log. The oncoming and out-going shifts overlap for continuity, while this may be adequate; the procedure is not standard across all shops.		
Bet-Shemesh Engines Ltd	Bet-Shemesh	IS	5/17/2006	5/9/2005	21.5	1	1. Manuals Revision status pages in technical manuals are incorrectly used. Revision numbers are not recorded in required location. 2.Housing and Facility Policy and procedures for verifying current status of Advisory Directives need to be updated. Current system lacks verifiable verification of bi-weekly checks. 3. Personnel Records Roster of required personnel as required by CFR , Title 14, 145.161 (4) is not available. 4. Training Could not verify training records for Mr. Haim Shchori, authorized "Release to Service" Inspector.	Corrective Action Plan Accepted	5/7/2007
Bridgestone Aircraft Tire Europe S	7080 Frameries	BE	12/12/2006	11/23/2005	16	1		Corrective Action Plan Accepted	12/7/2007
Business Jets Div Commercial Airc	Lod	IS	10/15/2006	10/15/2005	45.25	2	Repair Station Manual, Quality Manual, Training Program/Records, Staffing, Personnel roster/Employment Summary, Capabilities List, OEM Manual and Procedures, Personnel Qualifications	Corrective Action Plan Accepted	10/7/2007
Cargolux Airlines International S A	Luxembourg	LU	2/25/2007	1/16/2006	77	2	1. Records Systems: - Job task documents in sheet metal shop were completed with the appropriate maintenance actions and manual numbers, but the manual revision numbers were added later by someone other then the individual that performed the maintenance. Ref: Title 14 CFR 145.109 2. Manuals: - Sheet metal shop can use either a hard copy or the company database to access the SRM. SRM 53-00-01 had a hard copy temporary revision 53-24 posted but the online database did not contain the revision. 3. The documentation of manufactured parts/tooling is not being accomplished in accordance with the established RSQCM procedure. 4. Technical Data: The engine shop is utilizing a condensed IPC breakdown sheet for the build up of the thrust reversers. The sheet however does not list the IPC number or revision level. Ref: 5. The machine shop manufactured a part using Boeing technical data at a lower dash number then what was required by the work order # 1000600. 6. Tools and Equipment: - Micrometer # 05351698 in the machine shop did not have a calibration due date.	Corrective Action Plan Accepted	2/8/2007

AVIATION SAFETY/FLIGHT STANDARDS - REPAIR STATION INSPECTIONS AND RESULTS

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							7. The media blast unit compressed air gauge is not calibrated. 8. Parts and Materials: Found expired aircraft parts in stock Ref: 9. Maintenance Process: The Accessory shop test stand had several test lines lying on the floor and uncapped. 10. On work order 147403, 747 Classic Service Check, performed on N535MC, Item 8.i. missing required information on the release to service block. (i.e. log book page number, date, and Zulu time). 11. Information entered in error was scratched on several documents. This is contrary to Cargolux Quality Control Manual, section 3.10.2. 12. Procedures for releasing aircraft back to service are not being properly followed. 13. Air Carrier Requirements: - N499MC is being maintained by Cargolux, however, this aircraft is not listed on Atlas Air Maintenance Support Agreement 03/0198 Annex 1, dated October 2, 2000.		
Chromalloy Holland	Tilburg	NL	2/18/2006	6/27/2005	63.5	2	1. While reviewing a work order under Tracking # 405076, we found that a number of CF-700, Vane Sector Stage 1-8, P/N 2920T15P08 had been repaired and was not on the Capability List. 2. While reviewing the above referenced tracking number, we noted the manual reference on EASA dual release referred to engine manual chapter 72-33-21. The Process Description 1017 references the correct manual section 72-32-2, repair # 4. We understand that this function of listing manual references is computer controlled. 3. Job Order # 205134/1 originally contained 24 pieces of part number 1327M99G01. During the repair process, it was discovered that there were 23 items under part number 9331M54G02, and only one (1) under the original part number. Personnel then issued Job Order # 205134/2 with 23 pieces. Ultimately 22 of the 23 were recycled under a Minor Recycle Sheet (MRS) under J.O. 205134/2. Final release certificates were not linked to the correct Job Order. 4. W/O Tracking # 405076, Job Order # FRA207679/8.	Corrective Action Plan Accepted	2/7/2007
							While checking furnace log sheet No. 135035, we found that the temperature recorder was inoperative. The product was accepted for return to service based on (2) temperature readings taken in a 24 hour period, plus analysis of the test coupon. The heat treat process specialist made this decision. It appears that no specific instructions, SOP, or engineering order addresses the parameters of acceptability 5. While visiting the "coating area" a review of 3 internal Standard Procedure Manuals (SPM's) was completed. All of the SPM's, 21-55 revision I; 28-02 revision M; and 21-59 revision B, were one revision behind the masters. 6. There appears to be no training records for "non-critical" job function employees. 7. All employee training files are "scattered" through many records of attendance, and throughout several different locations. All files should be consolidated by employee name. The HR department is currently striving to complete a data base that will correct this situation.		

AVIATION SAFETY/FLIGHT STANDARDS - REPAIR STATION INSPECTIONS AND RESULTS

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							8. Chromalloy Holland issued Purchase Order 80390R1 to Chromalloy Dallas for 2 ea. CFM-56-3 compressor stator vane sectors stage 5, part number 9526M65G17. Chromalloy Dallas issued the FAA Form 8130-3. Then Chromalloy Holland issued a C of C that indicates that the repair was accomplished by Chromalloy Thailand. 9. Spray Booth # ZPS 3837, located in building 3, had calibration tags from Praxair that shows a due date of April '06. The same tool has a Chromalloy calibration sticker showing a due date of March '05, which indicates an out of calibration status. The data base shows that the tool is out of service. There is no red sticker on the tool. The maintenance department can not produce the Praxair calibration paper, no can they determine if they reported the tool as out of service. 10. During a visit to the Radiographic Area in building 1 a box of "large" x-ray film was observed with an expiration date in 1999. It was not possible to determine if the film is in use. A roll of film stored on the counter was noted with no expiration date evident.		
Chromalloy Israel Ltd	Qiryat-Gat	IS	7/19/2005	NOTE 2	33.2	2	Repair Station Manual, Quality Manual, Tooling, Company Procedures, Staffing	Corrective Action Plan Accepted	NOTE 2
Czech Airlines	Prague	EZ	10/27/2006	10/27/2005	77.25	2	Parts and Materials 1. In the Composite Shop some of the in and out time for pre-preg fabrics was not monitored properly. Although the shop was maintaining a record for the in and out time, the total time accrued on the fabric was not known to the shop because that record is maintained by the main store department. Several shelf life items were past their due date. Fibers glass and carbon fabric materials were not protected from the elements. The wires for the heating pads of the vacuum test box were exposed and in need of replacement. In the Landing Gear Shop work order protocol # 41886565-06 for a drag brace refers to a J/O LG 37-2001 and CMM 20-30-02 for the cleaning tasks. The J/O LG 37-2001 instruction lists a Turco 4181L and a Cee Bee A292T as the solution agents for the cleaning process. However, this is contrary to Boeing Standard Overhaul Process Manual "SOPM" 20-30-02, page 11, because neither of these agents is listed in the Boeing SOPM. Also, it was noted for the wheel cleaning that a Sinclair AC was also in use;	Corrective Action Plan Accepted	10/7/2007

AVIATION SAFETY/FLIGHT STANDARDS - REPAIR STATION INSPECTIONS AND RESULTS

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							however, it was not listed in the manual either for a substitute .. In the Brake Shop there is no evidence of traceability to serviceable documents for brake pads consumed in maintenance [14 CFR 145.219(a)]. This is a repeat finding from last year's audit. 4. Numerous new replacement parts are stored in the Seat Shop. There is no way to trace the parts to serviceability documents. OBSERVATION: There was a large quantity of scrap parts stored in the seat shop. If the parts are not going to be disposed of immediately they should be quarantined to prevent access. 5. In stores a part was found on the shelf that was marked electro static sensitive. The item was not sealed or in ESD approved wrap. The component had been repaired at CSA. Records Systems 6. In the Wheel and Brake Shop there is no record of individual maintenance operations available to confirm all necessary steps are accomplished for a repair or overhaul. It is not clear why the landing gear shop uses a comprehensive step by step accounting of all operations,		
							stamped by the technician performing the step and this shop does not. 7. A review of an EASA Form 1, tracking number CSA/LG/05 0876, for the overhaul of a landing gear that was released to service under dual release, revealed that although Airworthiness Directives were accomplished there were no information in the remarks section "block 13" to indicate that the AD was indeed accomplished. Also, there is no list for the status of the life limited parts. CSA Job Card B72-31-02-RI-CSA states that a stiff bristled brush be used for cleaning B-737 Fan Blades. The B-737 AMM states that for cleaning the fan blades a soft bristled brush is required. Technical Data 9. It was noted in engineering that the B 737-800 Structural Repair Manual was at revision 26. Revision 27 had been issued by Boeing on July 10, 2006. 10. In the Landing Gear Shop SOPM chapter 20-30-02, located on the local server, was at revision 22. The library paper version was at revision 26. The library did not know that the Landing Gear Shop had the manual on CD and consequently couldn't control it. 11. A visit was made to Technometra Radolfin to review over sight of contract maintenance functions. The CSA supplied SOPM 20-10-03 for shot peening was at revision 29. The manual had been revised to revision 30 on July 1, 2006. 12. While visiting the Seat Shop CM 25-20-340 was reviewed for currency. The shop manual was at revision 2. The version in the main library was at revision 6 dated May 13, 2005. Housing and Facilities 13. The Paint Shop, in the condition I viewed it in, does not meet industry standards. Please advise as to the condition of air supply filters and moisture control. The wall mounted air pressure gauge was unreadable due to paint overspray. The gauge mounted on the paint applicator was in worse condition. General housekeeping needs attention. Storage cabinets should be cleaned and organized. Parts identification was also an issue. This area should be ready for re-inspection prior to re-issuance of the Air Agency Certificate. Tools and Equipment		

AVIATION SAFETY/FLIGHT STANDARDS - REPAIR STATION INSPECTIONS AND RESULTS

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							14. Several of the test boxes manufactured by CSA under reverse engineering program were marked by using the original OEM name and part numbers. The manufacturer had not provided any drawings, instruction or schematics for the manufacturing of the boxes, and therefore, these boxes or test equipment should have a unique number to indicate CSA was the original manufacturer.		
Dhl Aviation Services W L L	Manama	BA	3/12/2007	3/15/2006	32	2	Repair Station Manual, Quality Manual, Tooling, Staffing, Capabilities List, Personnel Qualifications	Corrective Action Plan Accepted	3/8/2007
Driessen Global Services	Boesingheliede	NL	8/17/2006	10/15/2005	32.5	1	Training Porgram/records, Inspections/receiving inspections, Forms/Records, Personnel roster/Employment Summary	Corrective Action Plan Accepted	8/7/2007
Dunlop Aerospace Limited	Grace-Hollogne	BE	5/15/2006	6/17/2005	17.5	1	Personnel roster/Employment Summary, Quality Manual, Tooling, Facilities, Use of Current Data, Calibration	Corrective Action Plan Accepted	5/7/2007
El Al Israel Airlines Ltd	Tel Aviv	IS	9/29/2006	5/18/2006	28	1	1.Of the work orders inspected, five of the parts returned to service on the faa form 8130-3 are not identified on the faa accepted capability list or the amendments to the capability list. the procedure contained in the repair station/quality manual for amending the capability list is not being followed by the various departments. the faa operational specifications for the repair station authorize work in accordance with the accepted faa capability list, document number qcp0634. 2. Many workorder packages do not include the "preliminary inspection" as described in the inspection procedures manual (ipm) section 5 .3 and required by 14 cfr part 145.211(c)(1)(ii). This is a repeat finding. 3. Block 13, of faa form 8130-3, occasionally has the "other regulation specified in block 13" block checked, but there is no regulation described in block 13. This is contrary to faa order 8130.21c paragraph 14s. This is a repeat finding. 4. In block 9 (eligibility), of faa form 8130-3 for several work orders shows "various" in this block. The word "various" is not allowed to be used in this block. This may be contrary to faa order 8130.21d paragraph 14, item (i). 5. Work order #165443 for a carousel control display, p/n 789139-001, s/n 01-01366, does not contain a signature and stamp for final inspection. This may be contrary to 14 cfr part 145.213(a). 6. Inspection of work order #153465 does not have the mechanic stamp blocks for the work performed on page 4 of the component work form completed. This may be contrary to 14 cfr part 43.9(a). 7. Work order # 157261, for rr engine, trent 895-17, s/n 51391, el al procedure eagc-ax-72005 not completed, the maintenance sign-off on numerous entries are missing. This may be contrary to 14 cfr part 43.9(a). 8. The employment summaries for the personnel listed on the rosters does not include past relevant employment as required by 14 cfr part 145.161(a)(4). 9. The rosters required by 14 cfr part 145.161 are not in the english language and are not able to be inspected at this time. Inspection production manual (ipm).	Corrective Action Plan Accepted/EIR 2006EA330002	9/7/2007

AVIATION SAFETY/FLIGHT STANDARDS - REPAIR STATION INSPECTIONS AND RESULTS

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							10. The inspection procedures manual does not adequately address various procedures per faa advisory circular 145-9. A comprehensive review of the ipm needs to be accomplished to ensure adequate policy and procedures are in place. This may be contrary to 14 cfr part 145.209 & 145.211. This is a repeat finding. These procedures include: A.roster control B.capability list C.incoming inspection D.maintaining the repair station manual E.shelf life management 11. The procedure for distribution of the inspection procedures manual (ipm) does not reflect the actual practice in el al. The procedure on page ii, of the ipm states that there will be a list of manual holders and that the method of viewing the ipm is in a hard copy manual format. The actual practice is to view the most updated version on the company intranet. 12. Of the distributed copies of the ipm in the work areas, numerous copies are in an outdated condition. This was noted in, but not limited to, two of the four avionics shops as well as receiving.		
							In some cases, the holder was not aware of the existence of the ipm on the company intranet. This may be contrary to 14 cfr part 145.207(c). 13. Inspection procedures manual page 5.5, item 2.10, references a serviceable tracking tag. The inspection procedures manual does not give as example of this form or an explanation on how to fill it out. This may be contrary to 14 cfr part 145.211 (3). 14. Inspection procedures manual page 5.5, gives an example of the approval for return to service. This example gives an incorrect faa approved certificate number. Landing gear shop: 15. The landing gear department does not meet the requirement for the space sufficient to segregate articles and materials undergoing maintenance, preventive maintenance or alterations and sufficient workspace and areas for the proper segregation and protection of articles during all maintenance. This may be contrary to 14 cfr part 145.103 (a)(2)(i)(iv). Tool equivalency 16. In multiple shops it was noted that locally manufactured tools were being used without having the required part number or being evaluated.		
							Inspection procedures manual section v, chapter 5.20, paragraph 1.1, addresses this issue but needs to be expanded to include specific procedures for determining tool equivalency. 17. The engine shop technical library contains boxes of revisions to component maintenance manuals and illustrated parts lists, which haven't been inserted into their respective manuals. Pratt & whitney, jt8d engine manual, p/n 785059, had revision #69, dated february 1, 2005 still waiting to be inserted. Current working manual was revision #68, dated august 1, 2004. Ref: cfr, title 14, section 145.211 (c)(v). 18. Numerous parts were found within engine shop without proper identification as required by the inspection procedure manual. Example: low pressure turbine, s/n 7218, had no traceability to an engine. Ref: inspection procedures manual, section 5.6. 19. In the engine shop, serviceable parts (faa/pma) were found stored with unserviceable parts within an area marked " unserviceable". This may be contrary to 14 cfr part 145.103(2)(i).		

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							20. The accessory workshop is using a computer generated capability list generated in 2004 to verify parts for repair. The current faa accepted capability list, el al document qcp 0634 was accepted by the faa in 2003. 21. In the chemical stores area of the tool crib, there were three 5-gallon buckets of different greases that were uncovered and open to contaminants. This may be contrary to 14 cfr part 43.13(b). 22. Several uncontrolled documents were found in the avionics #1 shop that were copied out of a cmm. These documents did not contain a stamp "for reference only". This may be contrary to 14 cfr part 145.109(d). 23. The el-al inspection procedures manual section 5.6, paragraph 1.1 , states that all components undergoing maintenance will be tagged. This procedure is not being followed. Examples of this were noted throughout the repair station and storage parts storage areas. This is a repeat finding.		
							24. The el-al inspection procedures manual, section 5.7, does not adequately address the handling of sealant and compounds to ensure shelf life limits are not exceeded. Also, multiple shelf life items are extended without having the approving documentation to support the extension. These items were found throughout el-al's facility including the stores and the workshops. This may be contrary to 14 cfr part 145.211(c)(1)(i). This is a repeat finding. 25. The scrap parts program is not being maintained in accordance with the inspection procedures manual, section 5.17. The el al form displayed in the ipm, section 5.17, page 7, is not the document being used for scrapping of parts nor was there a controlling list for scraped parts as required by the inspection procedures manual. This is a repeat finding. 26. The repair station has not done and does not have planned an audit of non-certificated contractors as required by 14 cfr part 145.217(b)(1).		
							27. The line maintenance stores contained several items in an expired shelf life condition. The items were sherlock leak detector and dow corning sealant 3145. This may be contrary to 14 cfr part 43.13(b). 28. Six michelin 757-300 landing gear tires were found being stored, unprotected from the environment, on the ramp area. These tires have faa approved 8130-3 for each. This may be contrary to the manufacturers storage recommendation and 14 cfr part 145.103(2)(i). Multiple aircraft oil service trucks oil service nozzle were found unprotected and lying in an unclean area. This may be contrary to 14 cfr part 43.13(a) 30. Electrical protection and line caps were not installed on several engines in storage in shop. 31. Throughout the repair station, shops and hangars, a trend is noted concerning the lack of control of untagged aircraft parts and the storage of aircraft parts. In some shop areas, parts storage containers had a wide range of different bolts, nuts, washers and other aviation parts being stored.		

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							Miscellaneous parts are being kept in parts containers without identification or a way to confirm tractability. Also noted were unserviceable repairable parts being stored without the proper protection and covers for the parts.		
Emcoair	Ashdod	IS	3/14/2006	6/23/2005	19	1	Repair Station Manual, Personnel Qualifications, Training Program/Records	Corrective Action Plan Accepted	NOTE 2
Emirates	Dubai	AE	2/25/2007	2/7/2006	197.4	4	Parts and Materials: 1. Stores – Prepreg is kept in a freezer that does not allow for it to be stored horizontally. Reference CFR 14 Part 145.109(a). 2. Stores – Some shelf life items do not have the repair station tracking label. Other shelf life items have labels on the box but not on the item itself (e.g. tubes of sealants). Once these items leave stores and are removed from the box the traceability / lot information is lost. This was noted in the Line Station stores as well. Reference CFR 14 Part 145.109(a). Quality Control: 1. Chiller Shop – Control of tools, calibration and manual revisions associated with repair of components related to BE Aerospace do not appear to be incorporated into the Emirates Repair Station System. Reference CFR 14 Part 145.211. Maintenance Processes:1. Interiors Shop – Laminate repair of galley double door P/N AGEK3-2F1602-01 repair order 883721 was accomplished using CMM 25-31-13.		
							This procedure requires laminate to be activated at a temperature of 105° C under a pressure of 50 mega Pascal but the equipment to accomplish this was not available. Reference CFR 14 Part 145.109(a). 1. Emergency Equipment Shop – The Air Cruisers Component manual (CMM 25-61-33) requires the recording of the time of deployment for the floor run functional test of the life raft. This information is not being recorded. Reference CFR 14 Part 43.13. 2. Avionics Department – A bonding test that is required when the computer, part number C12849, has been disassembled is not being accomplished prior to ATE testing as required by CMM 22-81-13B. Reference CFR 14 Part 43.13.		

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							3. BE Shop – Currently the technicians are using a locally developed stage sheet (table 1005) as guidance for the accomplishment of test procedures in CMM 25-30-43, for part number 267SV. Not all of the information detailed in the CMM is accurately transferred to the Stage Sheet. Reference CFR 14 Part 43.13. 4. Composite Shop / Stores – The in and out time of the prepreg fabrics are not being recorded in the Composite Shop and during shipment of the material from the supplier. Reference CFR 14 Part 43.13. 5. Paint Shop – A technician in the Paint Shop was not able to locate information in the CMM for painting of aircraft wheels. Reference CFR 14 Part 43.13. Housing & Facilities: 1. Battery Shop – The Repair Station does not have an Electro Static Discharge program in place in the battery shop to support the testing of Part Number D717-01-001, as required by Component Maintenance Manual 24-35-01. Reference CFR 14 Part 43.13 2. Line Maintenance – The serviceability of an oxygen cart, identified as EK-041, in "G" hangar was in question.		
							Hoses were not blanked and general condition of controls left the serviceability in question. Reference CFR 14 Part 145.109(a). 3. Electrical Avionics – The air pressure in the electrical avionics department is required to provide a filtered, dry, and oil free pressure when cleaning the articles (e.g. coffee makers). It does not appear that this is being provided. Reference CFR 14 Part 145.109(a). Tools and Equipment: 1. Avionics Shop – Numerous articles identified on the capability list reflect that the repair station is not conducting a proper tool evaluation prior to adding a component to the capability list. This includes documenting the audit and being able to provide proof that the articles are equal to the manufactures recommended test/tools. Example. CMM 23-20-26 for Honeywell P/N 7516118 requires RF power meter HP437B but this equipment was not available. Reference CFR 14 Part 145.109(a). 2. Electrical Avionics Shop – During the testing of the coffee makers a stopwatch is used to determine the airworthiness of the article.	Corrective Action Plan Accepted	2/8/2007
							However the stopwatch is not calibrated. Reference CFR 14 Part 145.109(a) & Part 43.13. 3. Chiller Shop – The indicator used to determine the level of evacuation of the refrigeration plumbing system is required to accurately achieve specific values to ensure all moisture is removed from the system. Currently the indicator is not under the repair station or BE's calibration program. Reference CFR 14 Part 145.109(a). Manuals: 1. Repair Station Manual does not include the requirement for FAA Approval of non-certificated contractors. Reference CFR 14 Part 145.217(a)(1).2. Repair Station Manual does not identify the "FAA Training Program Manual" as the source document for the FAA approved training program. Reference CFR 14 Part 145.163. 3. The capability list does not appear to be maintained. It was noted that numerous items located in the capability list are related to the A300 but associated manuals are not being maintained current. Reference CFR 14 Part 145.109(a). Contract Maintenance Non-Certificated: 1. Seat Cover Shop – All seat cover cleaning is out sourced.		

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							Initially the question concerned the recording of each cleaning. It appeared that recording wasn't being done on a consistent basis and in many cases there wasn't any medium available to record the number on. However after reviewing the last audit, done by Emirates, on Seven Seas Laundry the entire cleaning process is suspect in regards to its affect on the fire retardant qualities of the fabric. It appears that Emirates is very aware of the problem and is actively working towards a solution. Please provide the steps that will be taken towards a solution and a time table for corrective action. Reference CFR 14 Part 43.13.		
Ethiopian Airlines Enterprise	Addis Ababa	ET	9/21/2006	4/26/2006	140.5	3	1.Manuals: a The RSM/QM states (section 12.33.02), that FAA approval is required prior to distribution of revisions, which is contrary to its established revision procedure. Additionally, each page of the manual includes the statement "USA-FAA Approved". This statement should be removed, as the FAA does not approve repair station manuals. B. The RSM/QM states in section 12.36.17, paragraph 5, that articles will not have individual records under the final inspection and release to service procedures. What does this mean? The statement appears contrary to FAA regulations regarding maintenance records. 2. Technical Data: Internal maintenance documents: a. Some component test and inspection sheets include partial lists of tasks from the maintenance manuals, but do not direct the technician to the maintenance manual. It appears, that in some cases the inspection and test sheets are effective in forcing the technician to use the manufacturer's manual, but this is not consistent across all documents.	Corrective Action Plan Accepted	9/7/2007
							B. There is not a consistent use of the term "N/A", as it is described in Note 2 of the Powerplant Overhaul Dept.'s "Repair Process Sheet". Some tasks are crossed through, some are just stamped, and in some cases the blocks are not filled out. C. The use of "N/A" in the Airworthiness Directive (AD) Listing is confusing, as it was applied to two AD's in error. The steps marked N/A were actually applicable. REF: Powerplant Work Order # R4Z27908 (HIS JT8D). 3. Tools and Equipment: A "Gause Meter" used in engine MPI area was not calibrated. ASTM 1444, table 1, specifies a 6-month interval. Boeing BSS 7040 Table 1 also specifies a 6-months interval. B. The "lapmaster 700" table for lapping seal-rings for JT8D is not calibrated. C. In the heat treatment area, recorded temperatures are not accurate. The recording device may not be suitable for the recording requirement. D. Four articles of precision test equipment were audited for traceability to standards. Two items were found unsatisfactory for the following reasons:		

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							A "Tensiometer", Model TS-8002-105-00, serial number 64931, had the following discrepancies: 1 No traceability paperwork. The local calibration lab is calibrating this item every 12 months and does not provide certification paperwork. 2. This unit has a new calibration sticker that has extended the calibration cycle to 18 months. After reviewing the manufacturer's instructions for calibration, it was noted, that this specific item should be calibrated on a monthly basis. 3 The new calibration sticker has been taped over the old calibration sticker, which should have been removed per the RSM/QM. The Instrument repair shop's "Sperry ADT-222B" test equipment has no current calibration records for traceability. The control of measuring test equipment is not being recorded in accordance with RSM/QM section 12.37.07, paragraph 2. This was discussed with the responsible managers. They indicated that corrective action is forthcoming as a revision to the RSM/QM. The following was noted in the Hydraulic Shop: Lines used for the hydraulic test bench do not have protective caps installed. Periodic maintenance intervals are not performed as required by the equipment manufacturer. The shop has revised the internal inspection card for the equipment sampled. However, a review of other test benches throughout the repair station should be conducted.		
European Pneumatic Component C	Schiphol-Rijk	NL	10/2/2006	6/22/2005	30	1	Parts, Tooling, Facilities	Corrective Action Plan Accepted	10/7/2007
Executive Turbine Pty Ltd	Gauteng	SF	5/15/2006	4/11/2005	44.75	1	Use of current data, Quality Manual, Training program/records, Tooling, Forms/Records, Facilities, Inspections/Receiving Inspections	Corrective Action Plan Accepted	5/7/2007
Finnair Oyj	Vantaa	FI	8/1/2006	8/1/2005	111.5	3	Records Systems 1. A review of the Work Order 810098, reflects that a Flight Management Computer was modified to a -913 status. However the EASA Form 1 dual release does not reflect this. This appears to be contrary to the MOE/TPM. 2. The Task maintenance instruction sheets that have measurements recorded are not always being maintained with the work package. This appears to be contrary to the MOE. Housing and Facilities 1. The cleaning solution used to clean Engine bearing needs to be identified as such with a proper sign; this will prevent the possibility of contamination due to articles improperly being cleaned. Also housekeeping needs to be improved in this area, Ref 145.103 (a)(2). 2. Unserviceable parts located in the Avionics Department awaiting final determination of disposition, are not being adequately protected, Ref 145.103 (a)(2). 3. Housekeeping practices need to be implemented at the Plating Shop. Work benches, and general area need to be kept clean, in order to prevent any contamination, Ref 145.103 (a)(2).	Corrective Action Plan Accepted	8/7/2007

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							4. There does not appear to be an adequate program in place to control Standard hardware. Aircraft hanger work stations (when not in use) contain numerous left over new hardware in drawers that were not used during the maintenance of aircraft previously in for repair. This appears to be contrary to the MOE/TPM. 5. Aircraft hangers 1, 3, and 6 overall general house keeping is not up to industry standards to include the following areas; work stands, and hanger floor, Ref 145.103(2). 6. Articles removed from aircraft undergoing maintenance in the hanger and stored on a table (Hanger 6) by the aircraft for eventual reinstallation, were not adequately protected against contamination, Ref 145.103(2). 7. There does not appear to be adequate segregation between the "parts with incomplete claims paperwork" and "incoming parts section". Note: Sections need to be clearly identified. (TPM 2.2.2 page 2) Technical data 1. The list of Contract Functions is not approved by the FAA as required by Title 14 of the Code of Federal Regulations, Part 145, paragraph 145.217. Note: the issue was immediately corrected and will not require further response. 2. A Position Transducer Center Drive Unit, part number 3M3-203C is identified in the Repair Station Capability list to the repair level. However the maintenance manual does not support the repair level, Ref 145.215 (c). 3. The repair station cannot ensure that all technical manuals are current. Currently the manuals are verified for currency on a yearly interval. The responsibility of verification was recently transferred to the technical manuals department. It appears that numerous manuals have exceeded the yearly verification without any further actions to include the following:		
							Notification to the applicable departments that the manual may not be current; Notification to the department responsible for maintaining the Capability list resulting in the temporary removal of the component from the Capability list, Ref 145.109 (a). 1. Tires are being inflated in the wire protective cage with the doors (2) open. This is contrary to the Maintenance Manual, Ref 43.16(a). Tools and Equipment 1. The protection of articles removed from aircraft undergoing maintenance does not appear to be adequate. There were two occasions when lines from the engine and QEC kit were uncapped, Ref 145.103(2). 2. The tool control program in place to monitor personnel tool control does not appear to be adequate or follow the requirements of the MOE. Team supervisors' three month tool box inventory signature sheets do not have all signatures as required by TPM 2.2.10. 3. There does not appear to be an adequate tool control program in place for tools located in the hanger tool rooms.		

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							Numerous items that were properly checked out have not been returned to the tool room after an extended time period of up to and over one year. At the present time there are 34 items that have not been returned and the repair station was unable to find any guidance in TPM on time limits, Ref 43.13(a). 4. A can of FREON used in the avionics department was marked with an expiration year of 2010. However the item is not identified as a life limited item, and is not being monitored. This is contrary to the Technical Procedures Manual. 1. Currently, the Avionics Department is using a IRIS 2000 automatic test equipment (ATE) to conduct final testing of a Communications Transceiver, part number 822-1044. However the Repair Station tool equivalency audit does not allow the use of the ATE, 43.13 (a). 2. The testing of a temperature bulb, part number 1150124-2 requires the use of Silicone Fluid type 210H as the heating medium. Currently the Repair Station is using Thermo Synth 260, without conducting an equivalency audit, Ref 43.13(a).		
							Numerous items that were properly checked out have not been returned to the tool room after an extended time period of up to and over one year. At the present time there are 34 items that have not been returned and the repair station was unable to find any guidance in TPM on time limits, Ref 43.13(a). 4. A can of FREON used in the avionics department was marked with an expiration year of 2010. However the item is not identified as a life limited item, and is not being monitored. This is contrary to the Technical Procedures Manual. 1. Currently, the Avionics Department is using a IRIS 2000 automatic test equipment (ATE) to conduct final testing of a Communications Transceiver, part number 822-1044. However the Repair Station tool equivalency audit does not allow the use of the ATE, 43.13 (a). 2. The testing of a temperature bulb, part number 1150124-2 requires the use of Silicone Fluid type 210H as the heating medium. Currently the Repair Station is using Thermo Synth 260, without conducting an equivalency audit, Ref 43.13(a).		
							3. Various rigging pins and devices were found hanging on racks and in boxes in all hangers that were not controlled by the main tool issue center. This appears to be contrary to the MOE/TPM. Personnel Record 1. There does not appear to be a summary of employment for engine department supervisors, 145.161 (a)(4). 2. The repair station was unable to provide a roster of supervisors as required by Title 14 of the Code of Federal Regulations, part 145, paragraph 145.161. Maintenance Process 1. There does not appear to be an adequate program that ensures all tools are calibrated. Currently the calibration monitoring program includes the following: One month prior to expiration the Cal shop will notify the department of pending items for calibration; If a tool is not surrendered no action is taken until the next month when another notice is sent to the department; On the third month another notice is sent and a separate document is produced weekly in the calibration department.		

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							With this document the Cal shop is required to contact the department and directly require a response; During the first three months there does not appear to be an adequate procedure in place to identify the status of the item requiring calibration. This appears to begin during the third month, Ref 145.109.		
Flight Line Maintenance	Madrid	SP	1/26/2007	3/17/2006	22	1	Repair Station Manual, Facilities, Personnel Qualifications, Training Program/Records	Corrective Action Plan Accepted	1/8/2007
Flight Line Maintenance B V	Schiphol Airport	NL	9/18/2006	7/26/2005	9.5	1	Training Pogram/Records, Forms/Records	Corrective Action Plan Accepted	9/7/2007
Fokker Elmo B V	Hoogerheide	NL	2/12/2007	7/23/2006	23.5	1	None		2/8/2007
Fokker Services B V	Hoogerheide	NL	4/10/2006	5/20/2005	56	2	1. MOE and FAA part seven needs to be revised to reflect the current AC 145-9 requirements. Currently written to the AC 145-7 requirements (BASA/MIP) 2. Capability List The limitations identified in the Capability List do not reflect the actual capability of the Repair Station (REF 145.215(a)). The following are examples: Escape Slide Part Number 60049ALL. The capability audit reflects the limitation to repair; however the Capability List reflects Overhaul. The Capability List identifies the repair capability of Propeller, part number 66715ALL, De-Iced Blade Assembly, part number 660720222. However the Air Agency Certificate does not have the proper rating authorization on the Air Agency Certificate. The Repair Station is currently conducting transponder certification in support of RVSM and 91.413. However the Repair Station is not currently rated to conduct this function (REF: 145.61). 3. Hanger 2 Several toolboxes were observed containing uncontrolled Standard Hardware that included screws, nuts, and washers (REF: 145.211).	Corrective Action Plan Accepted	4/7/2007
							4. Articles removed from the aircraft are not properly stored and protected. The following are examples: (REF: 145.211). Numerous pneumatic valves were stored without proper protection of the open lines. Numerous aircraft panel were stacked on top of each other without proper protection between the articles to prevent damage. General house cleaning program does not appear to be applied equally throughout the facility. Standard hardware and drill bits were located on the floor under one aircraft. Main landing gear tires weighing hundreds of pounds were leaning against aircraft jacks with the aircraft in the air. 5. Hanger 4 No Warning Sign ("Do not use flames or equipment that causes sparks") at the Fokker 100 on jacks with all fuel tank covers removed and not in accordance with AMM Fokker 50/100 procedures (REF: 145.211). 6. Paint Hanger Temperature and humidity indicator in the paint hanger was due calibration February 7, 2006 and is overdue (REF: 145.109).		

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							7. Sheet Metal Shop Extra parts left over from a Service Bulletin task is stored in a corner of the shop along with other boxes of parts awaiting receipt of parts that were ordered for their repair 8. Shops - All equivalent tools being used in several shops have not been documented and identified that they are an acceptable tool to use instead of the Manufacturers recommended tools listed in each maintenance manual (REF 145.109). 9. Documentation (REF 145.211) Currently on FAA Form 8130-3, the date on the return to service statement is listed as date, month, and year. This is contrary to guidance that requires month, date, and year. 10. Work order number 617828 reflects the maintenance on a baluster. Block 13 of the form does not adequately describe the maintenance actions completed, it only reflects the drawing number as data used to repair the article. The Component Maintenance Manual that was also used to inspect the component but was not identified. 11. Work order 504796 (Overhaul ex Avinca) position 80 of the work order says to use epoxy primer 37057 but the paint shop is using 37035A. 12. The cleaning shop has several Fokker flap track covers with no documentation on a shelf in the corner of the shop. 13. Procedures - It appears that the repair station is not complying with the Manufacturer's recommended procedures regarding the inspection of a Life Jacket part number A312350. The following are examples: The inspection procedures require the removal of the Schrader valve and a functional test conducted. This does not appear to be complied with. The life jacket battery is required to be tested with a resistance tester. This does not appear to be complied with. 14. Training - The Receiving department does not appear to be properly protecting articles that are identified as Electro Static Discharge sensitive. An article was received by the repair station that was labeled, as ESD sensitive, as received it was not properly protected. However the Receiving department did not provide adequate protection when handling the component to include proper protection when in transit from the Receiving Department to the Electrical Department. It was also noted that the unprotected article was not properly stored when delivered (REF: 145.211).		
Fokker Services B V	Oude-Meer	NL	3/22/2006	5/25/2004	61	2	Forms/Records, Capabilities List, Inspections/Receiving Inspections, Parts, Repair Station Manual, Tooling	Corrective Action Plan Accepted	EXTENDED 3
G E Hungary Zrt	Veresegyhaz	HU	3/13/2007	4/3/2006	66	2	Use of current data, Air Carrier procedures	Corrective Action Plan Accepted	3/8/2007
General Enterprises B V	9761 Tk Eelde	NL	9/11/2006	8/17/2005	22	1	None		9/7/2007
Gestair S A	Barajas, Madrid	SP	5/28/2006	9/1/2005	31	2	Repair Station Manual, Forms/Records, Facilities	Corrective Action Plan Accepted	6/7/2007
Goodyear Nederland B V	Tilburg	NL	12/4/2006	9/27/2005	13	1	None		12/7/2007

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Gulf Aircraft Maintenance Co	Abu Dhabi	AE	11/2/2006	5/8/2005	205	4	Manuals 1The repair station could not demonstrate that the Repair Station Manual was accessible for use by personnel as required by 14 CFR §145.207. The Sheet Metal Shop Supervisor could not demonstrate that the GAMCO Repair Station Quality Manual was available. Housing and Facilities 1 Flammable material is being kept in a file cabinet not rated as fire proof in the calibration shop.Ref: 14 CFR §145.103. Tools and Equipment 1 The repair station could not demonstrate that test equipment and tools were calibrated to a standard acceptable to the FAA. Ref: 14 CFR § Parl 145.109. Examples: Fuel Comp. Repair Shop: Special tool kit for testing fuel control systems for CFM56 and CF6-80, the calibration date was over due, actual date was 26 Sep. 2006. Fuel Comp. Repair Shop: Fuel nozzle test stand TS-754, was found with one of the pressure gauge # SR1662, not listed on the calibration certificate. Fuel Comp. Repair Shop: Fuel Flow Test Stand TS-753, pressure gauge did not have a calibration sticker. Plasma Spray Shop: One dip tank in the cleaning area of the Plasma Spray shop has a temperature gauge that is unreadable (hazed lens) and not calibrated. Special Processes Manual 70-21-12 for CFM56 requires a heating solution of 265°F (130°C) for cleaning. This requirement cannot be determined with the existing indicator. Technical Data 1. Dimensional checks, as called out on Repair Routine Card 317451, Operation 20, are being improperly signed off by shot-peening shop personnel. The dimensional checks are actually being performed by the Bench Inspection Shop, but the routine card does not have a signoff area for their function. Note: shop personnel initiated and obtained revisions to the routine card through the planning department during this inspection visit. Ref: 14 CFR § 43.13. Parts and Materials 1. The repair station could not demonstrate that the materials necessary to perform maintenance in accordance with the manufacturer's recommendations were available. Ref: 14 CFR § 145.109 and § 43.13.	Corrective Action Plan Accepted	11/7/2007

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							Examples: Stores: Temperature recording for prepreg is not always available when it is received into stores. Stores: Traceability to the original manufacturer is not always available when prepreg is received into stores. Stores: Documentation of prepreg out-time from supplier is not being received. 1 Four cans of JAO-2 Developer were located in the NDT area with two expiry dates. The OEM expiration date of October 4, 2007 was located on the body of the can. A second sticker attached by GAMCO stores was located on the cap of the can and had an expiration date of December 1, 2007, which seems to have exceeded the OEM expiration date. Ref: 14 CFR §145.109. 1. GAMCO stores places identification sticker, including expiry date on the caps of hazardous material. However, during use, these caps can be lost or interchanged thus losing both traceability and expiration information. Ref: 14 CFR §145.109. 1. Various materials throughout the repair station were identified as being beyond shelf-life expiration date. Ref: 14 CFR §145.109.		
							An expired (Aug. 2006) Semkit Sealant kit, PR-1776MB-2, was found in Zone 3 Box in Hangar 3. One tube of expired RTV sealant was found in a flammable cabinet near the RAF tool crib in hanger 4. A box of expired sealants and compounds was found in a flammable cabinet in back of hanger 4. Various cans of paint, primer, and solvent were found opened at the painting hangar. Ref: 14 CFR §145.109. 1. Found a gallon of SermeTel 196, High Temperature Protective Coating, with a label instructing the loosening of the cap every two weeks in order to maintain pigment suspension. The cap was found sealed and according to the stock room supervisor the procedure is not being followed as instructed. Ref. 14 CFR 43.13. Training 1 The repair station has authorized four employees to conduct hydrostatic testing on oxygen bottles. However, per Department of Transportation approval, these personnel must have hazardous material training. Documented training could not be located for one of the four persons (Mr. Mashooth). Note: Mr. Mashooth is scheduled to attend Hazardous Material training in November 2006. Ref: 14 CFR § 145.151; 49 CFR §172.704. 1 The IFE workshop does not have an ESD (Electronic Sensitive Devices) program in place. No documentation on ESD practices training or ESD handling procedures was available for any of the technicians working in this shop. A similar finding was discovered on the Instruments shop; nevertheless, proactive measures were taken to develop an ESD training program at this location. Ref: 14 CFR §145.163.		
Gulf Helicopters Company	Doha	QA	3/6/2007	3/12/2006	40	2	Personnel roster/Employment Summary, Facilities, Calibration, Use of current data, Forms/Records	Corrective Action Plan Accepted	3/8/2007
Hamilton Sundstrand Customer Su	Maastricht Airport	NL	12/18/2006	12/12/2005	60.5	2	Personnel Qualifications, Calibration, Shelf Life, Inspections/Receiving Inspections	Corrective Action Plan Accepted	12/7/2007
Hedinger Flugzeug-Aggregate	Wattwil Sg	SZ	6/8/2006	6/6/2005	18	1	Inspections/Receiving Inspections, Forms/records, Capabilities List	Corrective Action Plan Accepted	6/7/2007
Helifly N.V.	Genk	BE	1/16/2007	2/6/2006	21	1	Facilities, Inspections/Receiving Inspections, Tooling	Corrective Action Plan Accepted	1/8/2007

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Heli-One Components B V	6902 Pa Zevenaar	NL	2/12/2007	1/17/2006	31	1	Forms/records, Repair Station Manual, Company Procedures, Capabilities List	Corrective Action Plan Accepted	2/8/2007
Iai Mata Division	Jerusalem	IS	10/26/2005	12/7/2004	36	1	Training Program/Records, Calibration, Facilities	Corrective Action Plan Accepted	10/6/2007
Iberia Lineas Aereas De Espana S	Madrid	SP	8/27/2006	7/3/2005	132	4	Work Orders 1. Forms used throughout the facility, including FAA Form 8130-3, do not always indicate the same name of the organization. Different names found were: Iberia, Iberia Subdireccion Motores, Maintenance Iberia Subdireccion De Motores, Iberia Maintenance, Iberia Maintenance and Engineering. The form used for return to service should indicate the name of the repair station as shown on the Repair Station Certificate or any d.b.a. (doing business as) that is shown on the certificate. Reference FAA Order 8300.10 Volume 2, Chapter 170, section 2 procedures paragraph 7. 1. Work order # 03669013 references the overhaul of Integrated Drive Generator (IDG), P/N 727792M, S/N A1445. The IDG was released to service with an EASA Form One, dual release.	Name to be consistently used is Iberia Maintenance and Engineering. Verification and amendment of Manuals and forms used for return to service will be performed. Due date: September 15th, 2006. IDG was a loan to a Non US Operator. We have requested that the part is immediately returned to IB. In order to preclude reoccurrence, a read and sign warning has been send to Inspection, Supervision and R TS affected personnel. FAA Refreshment training courses have been updated accordingly. Low Pressure Check Valve PIN 2293B020000, SIN 10676 and Pressure Regulating Bleed Valve PIN 8714D070000, SIN 10565 were obtained from Northwest Airlines through Snecma, with a serviceable tag and without return to service paperwork. Before installing the parts, IB requested the return to service paperwork. Snecma replied that, according to NW A internal procedures, it was acceptable to install the parts, but procedure in NW A GMM was not well known in IB.	8/7/2007
							Examples: • Batch number / traceability information was missing on several pieces of treated sheet metal, e.g. AMS 4041-025, 032, and on several pieces of honeycomb. • Two containers of RTV 3140 were found with expired shelf life. Avionics/Electrical Shop Areas 1. The Avionics/Electrical shop areas contain uncontrolled serviceable and unserviceable parts stored in cabinets and drawers throughout the shops. Some of the parts have tags which are no longer traceable or have no tags at all. All parts used in the return to service of components on the FAA Capability list must have traceability to an FAA Approved source. This may be contrary to 14 CFR Part 145.109(a).	With respect to Nozzle Assy. PIN 238-0401-501 (P. O. 287734) SIN 258 was supported only by a Goodrich Aerospace tag. Dual certificate has been requested and received (Tracking No. 11305. FAA Certificate No. RE6Y013N and EASA Approval No. FR.145.369).	

AVIATION SAFETY/FLIGHT STANDARDS - REPAIR STATION INSPECTIONS AND RESULTS

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Industria De Turbo Propulsores S A	Ajalvir	SP	12/10/2006	3/7/2005	40	1	1. Records Systems: The ITP capability list provided was not current. The self evaluation process for adding aircraft part to the capability list has been followed but maintenance has been started with out the capability list being revised. The MOE section 7.6.3 procedures are not being followed. 2. Manuals: MOE section 101-700 gives incorrect guidance for the notification of Suspected Unapproved Parts (SUP's). Reference FAA Order 8120.10 3. MOE section 101-700 page 11 states the FAA will approve the Capability list. This is incorrect; the Spanish version states the approval will be done by the Quality Department. 4. MOE section 101-100 paragraph 1.8.3.4 gives description of the NDT area in building FA1. The description does not indicate the Florissant Penetrant Inspection area in building NA1. 5. Reference 14 CFR 145.209 © 6. Technical Data: GE service bulletin 72-0167 was revised July 27, 2006. ITP received this service bulletin September 2006. As of this date this revision has not been posted. MOE section 5.2.3 gives guidance of revision being posted within 30 days of receipt. This is a repeat finding from the December 2005 FAA inspection. 7. Tools and Equipment: Black light intensity daily inspections are not being performed to the standards in accordance with ASTM E1417. a. Parts and Materials: Inspection of the system for maintaining consumable which have an expiration shelf life found a systemic system failure in multiple shop areas. 8. Inspection in the stores/receiving area found multiple consumable which have a manufactures shelf life time being received/stored and tagged with incorrect shelf life due dates. Currently all items inspected are within the manufacturers shelf life dates, but the shelf life dates put on the ITP identification tag are less restrictive than the manufacturers date. 9. Inspection in the electrical accessories shop found multiple aircraft parts being stored without identification or traceability. 10. Contract Maintenance: MOE fails to give policies and procedures for revising and FAA Approval for the Contract Maintenance list.	At the time of the audit, SAP did not support these data in Routine Orders. A modification has been programmed in SAP to support these data. Reference to EMM and to the last revision of EMM in the headlines of Routine Orders has been provided since June 16th.	12/7/2007
							11. The current Contract Maintenance List has not been approved by the FAA.		
Jat-Technics Ltd Belgrade	Belgrade	YI	8/24/2006	NOTE 1	89	3	Shelf Life, Capabilities List, Repair Station Manual, OEM Manual and procedures, Company Procedures, Tooling, Training Program/Records, Segregation of Parts, Facilities	Corrective Action Plan Accepted	8/7/2007
Jet Aviation Ag Zurich Airport Bran	Zurich Airport	SZ	12/10/2006	12/10/2005	42	2	Inspections/Receiving Inspections, Facilities, Quality Manual, Parts, Tooling, Capabilities List, Personnel roster/Employment Summary	Corrective Action Plan Accepted	12/7/2007

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Jet Aviation Ag Basel	Basel Euroairport	SZ	1/11/2007	2/15/2006	117	3	1. The form used to document hardness testing is not listed in the repair station form library. Ref: Title 14 CFR 145.109 2. Work order # BN711027-ADS, work card #737-52-1152 has 2 discrepancies listed without a corrective action documented. Ref: Title 14 CFR 145.109 3. All Hangers including Paint hanger have some aircraft statically grounded to unacceptable grounding points in the hanger floor or unmarked grounding points. Additionally the ground wires are being hooked up to points of the aircraft with alligator clamps that are not the approved grounding receptacles or proper grounding locations. Ref: Title 14 CFR 145.103 4. Aircraft wheel and tires that have been removed from aircraft do not have protective bearing covers installed. Ref: Title 14 CFR 145.109 5. Superseded technical data, SB 34-2644 was being used to perform a software upgrade on a Universal FMS unit 6. Wet Particle solution 3 month change cycle was not documented for April 2006 7. Oxygen hose located in stores was not capped to prevent contamination 8. Numerous parts used for training located in NDI are not documented as to serviceable condition. Ref: Title 14 CFR 145.109 9. Several undocumented parts found in the alodine/cleaning shop 10. Certifying staff training records do not reflect regulatory training in accordance with 145.155, 157 11. Capability Manual, SN6801-1, section 5.2 does not explain how removed items are historically tracked by revision level. 12. The capability manual does not explain how internal audit are managed when non conformities are noted. 13. Numerous capability list amendment forms do not have the approval signature in block 4 14. Section 5.2.9 should be revised to state the follow: During the annual recertification audit the repair station will submit its current capability list to FAA for acceptability. 15. Section 5.2.4 does not state where the internal audits of the capability list are kept 16. The audit questionnaire form 0004-5 does not record what type, make, model or part number of article's being added to the cap list.	Corrective Action Plan Accepted	1/8/2007
Jet Aviation Dubai Llc	Dubai	AE	3/30/2007	2/18/2006	96	2	Training Pogram/Records, Tooling, Personnel roster/Employment Summary, Facilities, Calibration, Parts	Corrective Action Plan Accepted	3/8/2007
Jet Aviation Geneva S A	Geneva	SZ	3/13/2007	10/11/2005	30	2	Repair Station Manual, tooling, Facilities, Parts	Corrective Action Plan Accepted	3/8/2007

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Jordan Aircraft Maintenance Limite	Amman	JO	7/11/2006	3/18/2005	64	2	Housing and Facilities The repair station could not demonstrate that the housing and facilities are being maintained in accordance with Title 14 CFR Part 145.103. During the inspection of the Hangar area a portable parts storage table was seen with approximately 200 pieces of assorted used hardware spread out on the table. There was no identification tags attached to any of the hardware. During inspection of the Hangar area a used B-727 APU was found in a cardboard shipping container without any identification tag attached. In addition numerous used aircraft tires were lying around without any identification tags attached. During inspection of the Hangar area an L-1011 engine pylon fairing was found under the stairs for one of the emergency fire fighting stations without an identification tag attached. Parts and Materials The repair station could not demonstrate that the parts and materials are being maintained in accordance with Title 14 CFR Part 145.109. During inspection of the Hangar area an L-1011 oil pressure transducer part number 77141362 was found on a portable oil drain cart without an identification tag attached. Record Systems A review of several work order packages reflect company/FAA forms were not properly completed. This may be contrary to Title 14 CFR part 145.219. The following are examples: Block 32 of form QA2020P-R6, titled Authorized Inspection/Discrepancy Sheet/Preparation /Signoff" was not annotated as required by the Repair Station Manual. The type/size of life preserver was not identified on QA 0110F 8.01 titled "Life Vest Serviceable Tag". Review of work package for Lear Siegler hand pump part number RR34120C indicated that the incorrect part number was recorded on the return to service document FAA Form 8130-3. The overhauled hand pump was visually inspected and found to have masking tape wrapped around the AN fittings. This is not an industry accepted practice to prevent contamination. Review of JorAMCo's pre-printed return to service document FAA Form 8130-3 indicated that block 12 for Status/Work contained the descriptions Tested and Other which are not authorized by FAA Order 8130-21D. Review of work package TTT/0259/05 revealed that the return to service document FAA Form 8130-3 block 8, part number was blank. Providing a properly completed return to service document is essential. Errors like this must be discovered and corrected during the final inspectors review and prior to the document being signed. Review of several return to service documents FAA Form 8130-3 block 23 indicated that the date was being recorded in an incorrect format. FAA Order 8130-21D states that in order to be consistent and avoid confusion between European and US entry of dates on the forms it is necessary to enter the date as mm/dd/yyyy. Example Jun/29/2006. Technical Data The repair station could not demonstrate that the technical data used is being maintained in accordance with Title 14 CFR Part 145.211.	Corrective Action Plan Accepted	7/7/2007

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							Currently the individual department is responsible for monitoring the software data currency for the ATEC tester. This is contrary to the Repair Station Manual that requires the Technical Manuals department to monitor the program. Tools and Equipment The repair station could not demonstrate that the tools and equipment are being maintained in accordance with Title 14 CFR Part 145.109. A review of the "Special tools and test equipment" required by the manufacture for articles listed in the capability list reflect that the repair station is not consistently conducting a proper tool equivalency evaluation when authorized by the manufacture to use equivalent tooling and test equipment. This is contrary to the Repair Station Manual. The Repair Station Manual does not adequately provide guidance for conducting a tool equivalency evaluation when authorized by the manufacture of the article. Crimp tool part number M22520/1-01 appears to be last calibrated during the year of 2004. Water heater part number 24E507009 Series requires a flow meter reading of .44 GPM. As presented the flow meter is not graduated enough to provide the required readings.		
Jordan Airmotive Limited Company	Amman	JO	7/11/2006	3/19/2006	26	1	Forms/Records, Facilities	Corrective Action Plan Accepted	7/7/2007
Klm Royal Dutch Airlines	Amsterdam	NL	9/28/2006	1/17/2006	243.25	6	1 Records Systems. During an audit of the shift turnover in the Engine Facility, it was noted that Shift/Task handover procedures are to be documented on E&M form KLM 2275 (Overgave journal). This form is not being used in the same manner throughout the facility. Instructions for the use of this form could not be provided. FAR 145.211(c)(3); MOE paragraph 2.26.4. 2 Manuals Inspection of the MOE found no policies and procedures for the FAA required Malfunction and Defect Report. Furthermore, part nonconformance reporting requirement fails to identify FAA approved parts reporting requirement to the FAA. Ref 14 CFR 145.221. 3 MOE section 2.08.6 for equivalency determination fails to identify the procedures for consumable equivalency determination. 4 Housing and Facilities. Building 425, the incoming goods store area and throughout the avionic repair facility. Elector Static Devices (ESD) articles are not being suitably stored or segregated. 14 CFR part 145.103(a) (2) (iii) 5.The altimeter instrument shop is not adequately segregated from a machine shop.	Many discrepancies were noted and addressed. A compreshensive corrective action plan is avilable upon request.	

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AVIATION SAFETY/FLIGHT STANDARDS - REPAIR STATION INSPECTIONS AND RESULTS

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							This condition is a risk, which can potentially have an adverse affect on repaired instruments. 6. Technical Data. The Communication, Navigation, Radar and Instrument repair shops technical data was audited for content, currency, and temporary revision status. No discrepancies were noted. All technical data evaluated had revision levels current, all data was complete in its content and found to be in very good condition. It is "commendable" to the technical data service unit for such and excellent and professional manor in providing quality services to the avionics repair facilities. 7. OBSERVATION: Work Order 8C/0029405-71X was evaluated for Shop Traveler work description reference to Repair Instructions for the technician. When queried, the technician retrieved the incorrect repair instruction. It is accepted that the technician may have been nervous but if personnel perform a repetitive task using the same Repair Instruction then selection of the incorrect manual should not occur.		
							8. Tools and Equipment OBSERVATION: The instrument gyro rate table was not placard in accordance with the calibration control program. This test unit requires two separate certification sticker, which was corrected on the spot. 9. OBSERVATION: The Flight Data Recorder (FDR) ATE monitor was not readable. The brightness control had no effect on the display and shop technical personnel had not process/tagged the article in accordance with the local procedures for defective/un-calibrated test equipment. 10. Parts and Materials. During an audit of the Wheel and Brake shop, Hangar 14, it was noted that some seals for use in wheel repair were not in packaging and others in the same bin were in original packaging. Labeling on the packaging noted a shelf life for some seals. Shelf life (if any) for the seals without packaging could not be determined. FAR 43.13(b). 11. Quality Control. During an audit of the Wheel and Brake shop, Hangar 14, it was noted that during the final inspection of the wheel and tire assembly, one inspection requirement is to document		
							the pressure in the tire, date of the check, time of the check, and ambient temperature. This inspection is to be done on two occasions at different times. One work order was noted to have the pressure check that included this information. On the same work order, the second check of this information several hours after the first was noted to have the pressure of the tire, date of the check, and time of the check. The temperature was left incomplete. FAR 43.13(a). 12. The Expedition Incoming Goods inspectors located in Building 425 are not handling Electro Static sensitive articles in accordance with company policy or component maintenance manual requirements (i.e. KLM Special Instruction 20-00-00). Additionally, Incoming Goods inspectors have demonstrated a lack of knowledge and understanding for handing ESD articles even though ESD training is documented in their official training record. 13. Hangar 10, the incoming goods inspectors are not reporting the rejection of received parts to Quality Assurance in accordance with Keurrapport form		

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							, KLM 2835. 14. WATER & WASTE. During inspection of this area, assembly of a part was being performed using only the component parts manual. 15. HANGER 12. Their was no local KLM assigned identifications numbers on four locally manufactured portable shadow stands (for storing miscellaneous locking devices) for use on aircraft undergoing maintenance. 16. On the locally manufactured portable shadow boards all red streamers need to be replaced as they are either missing or not serviceable. 17. After a review of the maintenance records provided for one of the tow bars (1712183), it appears that the manufacturer's recommended preventative maintenance checks and cleaning are not being performed. 18. Tow bar number 1712183 has a locally manufactured rack that is mounted on top of the tow bar. It has position holes for three rig pins. At the time of my inspection, there were only two rig pins that did not have red streamers attached. The records show that three rig pins were installed in September 22, 2005. 19. KLM mechanics tool boxes have calipers as standard tools.		
							These calipers are not controlled to a calibration standard. 20. Inspection of the tools and stores area found aviation consumables, which require being stored at a specified temperature, being stored in a refrigerator which had no calibration standard. 21. NON DESTRUCTIVE TESTING X-Ray Shop: The process control checks i.e., daily, monthly, annual, and semi-annual were not being accomplished per ASTM E1742. It was noted that some of the required checks were not being performed and the portion of the checks that were accomplished were not recorded in a log. 22. Station ENG116834 in Plasma Welding had a black light (ENG114930) on. The daily check had not been done since September 12th. At our request, a daily check was performed and the black light tested 1270 which was under the minimum requirements of 1300. 23. Excess equipment stored in Hanger 9 area was not marked in accordance with the MOE. 24. ACCESSORY SHOP 425. NDT SHOP: The ASTM standards ASTME1417-95A and E1444-93 referenced in procedures manual PVI-001 is outdated.		

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							These outdated specifications are listed throughout the written procedures. 25. The dry oven is currently being calibrated at a yearly interval; the ASTM requires the oven to be calibrated semi-annually. 26. The Gaussmeter had a "calibration not required" sticker affixed on the unit. The calibration requirement is every six months. 27. CLEANING SHOP 425. A cleaning solution with an expired shelf life was found on the shelf. 28. A generator unit was observed in a vacuum dryer after a cleaning process. The task was being accomplished per a process listed in procedure manual PVI-001 (Process 15). This process requires the unit to be vacuum dried at a temperature not to exceed 60 degrees Celsius; however, the reference temperature differs from the component manufacturer CMM 24-21-04 which requires the unit to be baked in an oven at a temperature of 121-149 Celsius. 29. In addition, it was also noted that the "process 15" listed in the instruction manual PVI-001, also referenced an OHM 20-30-02 (BAC5725) as the source document. This document could not be found by the shop nor was it listed in KLM manual system. 30. The sand blasting machine contained a media that could not be identified. Although this machine was used on a regular basis, no one in the shop could identify the characteristic of the element. The only instruction in the process instructions manual PVI-001, page 20, was to soft blast the unit at max distance, the pressure and time required. The process does not make a reference to a specific media or a manual reference. 31. HYDRO STATIC TESTING 425. The pamphlets pertaining to hydro static testing i.e., CGA-C1, C5, C6-1-2 and C8 are outdated.		
Michelin Italiana S P A	Cuneo	IT	2/16/2006	1/20/2005	27	1	Quality Manual, Forms/Records	Furthermore it was not connected to all relevant activities in ARIS.	EXTENDED 3
Microtecnica S R L	Torino	IT	11/17/2006	3/15/2006	37	1	None		11/7/2007
Mng Technic Aircraft Maintenance	Yesilkoy-Istanbul	TU	3/8/2007	2/27/2006	107	Fdv5y	1. Manuals: The Quality Manual does not adequately address the procedures of the accomplishment of the Preliminary Inspection with regard to the accessory, and emergency equipment rating. 14 CFR 145.211C. 2. Training: It appears that Electrical and Accessory inspectors authorized to conduct Preliminary inspections for the repair station are not familiar with the location of the guidance on how to conduct the inspection. 14 CFR 145.151 3. Training records for painters are not being maintained in the Repair Station. 14 CFR 145.163. Note: Records were provided prior to completion of the FAA inspection. 4. Housing and Facilities: It appears that the repair station is conducting maintenance to the "C" level outside of the maintenance hangar. At the time of the audit, five aircraft were undergoing "C" checks, two outside the hangar. This would require the opening of numerous panels exposing compartments which are sensitive to environmental contamination. This included one aircraft outside the facility that had open fuel tanks, and miscellaneous panels removed and unprotected. . This is contrary to the Title 14, of the Co	handover form KLM E&M 2275. All users are informed of this alteration through the ARIS info page. The Shift hand over form will be connected to all relevant Engine Service Activities in ARIS on November 1st.	3/8/2007
Moog Holland Aircraft Services	Rijsenhout	NL	11/20/2006	12/10/2005	17	1	Use of current data, Company Procedures, Capabilities List, Forms/records, Air Carrier Procedures	Corrective Action Plan Accepted	11/7/2007
Mora Aerospace	Mariariske-Udoli	EZ	11/13/2006	11/11/2005	33	1	Quality Manual, Forms/Records, Calibration, Parts	Corrective Action Plan Accepted	11/7/2007

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National Airways Corp Ltd	Lanseria	SF	6/23/2006	5/15/2005	79	3	Use of current data, Repair Station Manual, Quality Manual, Tooling, OEM Manual and Procedures, Forms/Records, Facilities, Parts	Corrective Action Plan Accepted	6/7/2007
Nayak Aircraft Services S R L	Fiumicino-Rome	IT	6/10/2006	2/28/2006	37.5	1	Training Program/Records, Personnel roster/Employment Summary, Forms/Records, Shelf Life, Inspections/Receiving Inspections	Corrective Action Plan Accepted	6/8/2007
Nordisk - Ronai Cargo Equipment L	Moshav Mazor	IS	2/25/2006	1/18/2005	19	1	None		NOTE 2
Nordisk Aviation Products A-S	Dragor	DA	4/14/2006	7/25/2005	16	1	Forms/Records	Corrective Action Plan Accepted	4/7/2007
Nordisk Aviation Products Belgie N	Steenokkerzeel	BE	3/13/2006	6/29/2005	12	1	None		CERTIFICATE
Norronafly Propeller And Parts A S	Fornebu	NO	4/14/2006	5/10/2005	26	1	Repair Station Manual, Quality Manual, Parts, Training Program/Records, Tooling	Corrective Action Plan Accepted	4/7/2007
Ogma-Industria Aeronautic De Por	Alverca Do Ribatejo	PO	12/15/2006	1/27/2006	124	3	Repair Station Manual, Training Program/Records, Tooling, Personnel roster/Employment Summary, Capabilities List, Forms/Records, Facilities, Calibration, Shelf Life	Corrective Action Plan Accepted	12/7/2007
							Certification Requirements 1. The date on the original issue of the capability list, document 3283-9, is not the same date used in the Maintenance Organization Exposition (MOE), supplement 7, section 5.2 or on the issued operations specifications, paragraph A003. Ref: 14 CFR 145.207. 2. The MOE, supplement 7, should include documentation for capability list revisions, frequency of revisions, and FAA notification. Ref: 14 CFR 145.209, 145.215. 3. The repair station's operations specifications authorize, with limitations, the maintenance of PW JT9D-7R4E1 and PW4152 engines. However, shop personnel are not properly trained on these engines and are not prepared to perform non-line maintenance functions. Ref: 14 CFR 145.5. Records Systems The MOE, supplement 7, should have procedures for disposition and retention of maintenance records. A review of work records in the Line Maintenance area revealed that Olympic Airways-Services S.A. does not retain maintenance records for the required two years. Ref: 14 CFR 145.209, 145.219.		
							Manuals 1. The MOE, supplement 7 (FAA Supplement), section 8.2, should reference company liaison to the FAA and not the Hellenic Republic Civil Aviation Authority (HCAA). Ref: 14 CFR 145.207. 2. The MOE, supplement 7, should include documentation for Training Program revisions and FAA notification. Ref 14 CFR 145.209, 145.163. 3. Olympic Airways-Services S.A. is not following its procedures in the control and distribution of the MOE. The MOE states that numbered hardcopy manuals are provided to each manager or department per the distribution list. In fact, all personnel and departments issued an MOE on compact disc (CD). Ref: 14 CFR 145.207. Technical Data 4. In the accessory shop, inspectors found a non-controlled CMM on a shelf near a work bench. The CMM was removed and discarded during the audit. Ref: 14 CFR 145.109. 5. In the wheel and brake shop FAA inspectors were shown manual number 32-41-15. The manual covers a nose landing gear wheel assembly part number 28635109(-CWT. (See Component Capability List, file 3283-9). This manual was at revision 4		

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							The technical library researched the manual via the Airbus web-site and found the current revision should be Rev. 5, dated September 2003. The manual appears to be out of date by three years. The library had no record of the manual being received into the Olympic-Airways Services S.A. system. Ref: 14 CFR 145.109 & 43.13. Tools and Equipment 6. In the accessory shop, inspectors observed a pneumatic test bench with two vacuum indicators that were out of calibration since June 2006. Work Orders had been issued to calibrate both indicators. We were told that a lack of manpower in the calibration department had delayed the re-calibration and that no component had been tested on that bench that required the use of vacuum gauges. Ref: 14 CFR 145.109. 7. Two separate procedures were shown to FAA inspectors that are intended to govern the approval of equivalent tooling. Neither procedure is being followed. In most cases, no evidence can be shown that locally fabricated tools have been found "equivalent" to the tool required by the CMM.		
Olympic Airways - Services S A	Spata	GR	8/24/2006	7/1/2005	68	3	This is not in compliance with 14 CFR 43.13(a). The MOE, FAA Supplement 7, does not make reference to either procedure. Ref: 14 CFR 145.109. Parts and Materials 8. In the accessory shop, inspectors found two shelf-life items that were past their expiry date. A bottle of Locktite displayed an expiry date of May 2002 and a container of epoxy resin had expired in 1998. Ref: 14 CFR 145.109. 9. Olympic Airways-Services S.A. does not have a procedure to transfer shelf-life expiration information to individual items when ordered in batches. Stores issued products from these batch orders are not tracked for shelf-life expiration.Braycote, P/N VV-P-236A and Dow Corning 732 located in the stores area Ref: 14 CFR 145.109. 10. In the stores area, a 5 gallon container of Adrox 3302, was identified with an expiration date of December 2005. Ref: 14 CFR 145.109. Personnel Records 11. The MOE, Supplement 7, should include procedures for maintaining and revising personnel rosters. Ref: 14 CFR 145.209, 145.161. Maintenance Process 12. The Engine/APU shop received a "Removal Report" from the planning dep 14. The MOE, supplement 7, section 5.3, references 14 CFR 145.51(	Corrective Action Plan Accepted	8/7/2007
Orbit Acs Ltd	Netanya	IS	7/20/2005 NOTE 2	NOTE 1	32.1	3	Capabilities List, Forms/Records, Personnel roster/Employment Summary, Company Procedures	Corrective Action Plan Accepted	7/7/2007
Patria Helicopters Ab	Stockholm-Arlanda	SW	7/27/2006	7/1/2005	51	2	Repair Station Manual, Company Procedures, Training Program/Records, Capabilities List, Parts	Corrective Action Plan Accepted	7/7/2007
Pratt And Whitney - Paton	Kiev	UP	5/19/2006	7/15/2005	31.25	1	Forms/Records, Training Program/Records, Quality Manual, Use of current data	Corrective Action Plan Accepted	5/7/2007
Pratt And Whitney Norway Engine	Sola	NO	3/23/2007	3/16/2006	70.5	2	Use of current data, Repair Station Manual, Quality Manual, Tooling, Facilities	Corrective Action Plan Accepted	3/8/2007
Rockwell Collins Uk Ltd	Schipol-Rijk	NL	12/8/2006	9/27/2005	16	1	Use of current data, Quality Manual	Corrective Action Plan Accepted	12/7/2007
Romaero S A	Bucharest	RO	3/15/2007	3/3/2006	72	2	Use of current data, Repair Station Manual, Training Program/Records, Personnel roster/Employment Summary, OEM Manual and Procedures, Calibration	Corrective Action Plan Accepted	3/8/2007

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Royal Air Maroc	Casablanca/Nouasse	MO	3/21/2007	3/8/2006	95.5	3	Records Systems: Inspection of work order packet #95448 found that the final inspection block was signed off by an unauthorized mechanic. RAM's inspector verified the packet content and stamped the appropriate area for the inspection performed. Ref: 14 CFR Part 145.213 and 145.155 Manuals: The RAM IPM makes multiple references to inaccurate FAA Federal Aviation Regulations. Ref: 14 CFR Part 145.207 The RAM IPM, Sections 6.1 and 6.3, describe the Capability List contents. However, these sections and the current Capability List conflict with each other with regards to content. RAM has made revision to the Inspection Procedures Manual to correct this discrepancy. Ref: 14 CFR Part 145.207 and 145.215 The Capability List document number is not listed on the Capability List as called out on the RAM Operations Specifications paragraph A003 Limitations. Ref: 14 CFR Part 145.207 The capability self-evaluation process conducted by RAM prior to revising the Capability List does not appear to be adequate. The following are examples: The Avionics, Instrument, Accessory Departments do not have acceptable documentation reflecting when a tool, test equipment and or chemical evaluations are conducted. Ref: 14 CFR Part 145.211 The Avionics, Instrument, and Accessory Departments do not have acceptable documentation that demonstrates tool, test equipment and or chemical equivalency. Ref: 14 CFR Part 43.13 Tools and Equipment: An inspection of the NDT florescent inspection system found the penetrant brightness inspection was being performed annually. However, this inspection is a quarterly inspection in accordance with ASTM E1417. The brightness inspection has currently been sent off for inspection and the RAM's inspection control sheet is being revised to indicate the inspection requirement to be performed quarterly.Ref: 14 CFR Part 145.109 and 43.13 Maintenance Process: Approximately twenty (20) circuit breakers were pulled open and not tagged on a customer aircraft located in the main hangar. This is a repeat finding from the 2006 FAA recertification inspection. Corrective action to prevent recurrence has not been ensured. Ref: 14 CFR Part 145.207 Contract Maintenance: RAM currently utilizes non-FAA certificated persons to conduct maintenance functions. However, RAM could not supply an FAA Approved maintenance functions list. Further inspection found no policies or procedures in RAM's Inspection Procedures Manual for the control of this process. Ref: 14 CFR Part 145.217 RAM's list of contractors fails to identify the FAA requirement showing ratings. Ref: 14 CFR Part 145.217	Corrective Action Plan Accepted descrepancies corrected by air agency.	3/8/2007
Royal Inventum Company B V	Nieuwegein	NL	6/13/2006	6/1/2005	19	1	Use of current data, Repair Station Manual, Quality Manual, Training Program/Records	Corrective Action Plan Accepted	6/7/2007

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AVIATION SAFETY/FLIGHT STANDARDS - REPAIR STATION INSPECTIONS AND RESULTS

Name of Repair Station	Location of the Repair Station-City	Location of Repair Station-Country	Date of Last Inspection	Date of Inspection Prior to last	Duration of Inspection - in hours	Number of Inspectors	Discrepancies Found During Last Inspection	Discrepancies Addressed	Proposed date of next Inspection
S C Compania Nationala De Trans	Bucharest	RO	3/16/2007	3/21/2006	79	2	Records Systems: The capability list does not appear to be maintained in accordance with CFR 145.215 (a). Part number 21C-3-21 and 21C-3-22 are currently listed to the repair level. However the department can only test the component. Manuals: CMM 34-10-61 has uncontrolled documents within the manual. Several sections of the manual contain revisions that were required to be removed by the latest revision. Ref: Title 14 CFR 43.13 (a) Tools and Equipment: The sand blasting unit for wheel and brake shop does not have a calibrated air supply. Ref: Title 14 CFR 145.109. This finding was corrected while on site. The Repair Station does not have a grounded compressed air nozzle as required by the cleaning procedures located in the Component Maintenance Manual (25-32-75). Ref: Title 14 CFR 43.13 (a). The testing procedures for a coffee maker located in CMM 25-31-14 require the use of a pressure gauge capable of measuring 20 and 140 PSI. Currently the Department does not have a gauge capable displaying the required pressures. Ref: Title 14 CFR 43.13 (a) The pressure gauge used for the vent valve testing for a Ni-Cad battery part number 4579 is not capable of accurately displaying the required pressures. Ref: Title 14 CFR 43.13 (a) The cleaning section of maintenance manual 20-30-03 for the oxygen tubing of the passenger service unit assembly requires the use of a vapor degreaser for plastic parts. The department does not currently have the required item as required by the CMM. Ref: Title 14 CFR 43.13 (a) The repair of a battery power supply part number BPS7-2 requires the use of solder with a composition specification of SN 63. The electrical department is currently using SN 60. Ref: Title 14 CFR 43.13 (a) The cleaning of ADF part number 614L-11/12/13 requires a maximum pressure of 28 PSI when cleaning the component. The air pressure source does not currently have an indicator that is capable of displaying the current pressure. Ref: Title 14 CFR 43.13. This finding was corrected while on site. Parts and Materials: The composite shop does not have an effective "time out" log for pre preg materials. Documentation was not available to confirm the appropriate reduction for "time out" of materials from the moment of shipment from the supplier to final storage in the repair station. Ref: Title 14 CFR 145.109 The pre preg material located in stores is placed in the freezer at an angle. This is contrary to the material storage requirements to limit material resin migration and fiber breakage. Ref: Title 14 CFR 145.109 Maintenance Process: Currently the Repair Station is using alcohol to clean the oxygen tubing on the passenger service unit assembly. This method or chemical is not delineated in the CMM. Ref: Title 14 CFR 43.13 (a) Quality Control: The Repair Station does not have an adequate Chemical Evaluation program in place for evaluating an article prior to being added to the Capability list. Ref: Title 14 CFR 145.215(c)	Corrective Action Plan Accepted	3/8/2007

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Saa Technical Pty Ltd	Kempton Park	SF	5/19/2006	4/15/2005	190	4	Work Order Review: Inspection of the Work Order packages found Form 275A not being completely filled out, including the approval for return to service. (Reference Work Order package 920253421.) Further inspection of South African Airways quality manual procedure 04-08-02-01 page 4 does not give adequate information for the filling out of this form. Avionics: On the avionics modifications shop found the following: One can of contact cleaner and a bottle of alcohol lying on top on a working bench. These items are considered hazmat and should be kept secured on a fire proof cabinet. According to SAA QMP 04-13-02-00, Identification and Disposal of Scrap Materials, the company should have a scrap security area/bin. Found two crates full of unmarked unwires, according to the shop supervisor ready to be scrapped, without a scrap label (GT/128), and the area is not marked for scrapped materials. Reference 14 CFR 43.10 (c) (d). 3. The QMP Section 04-11-01-00 pg.1 (4) (b) states that, "all crimping tools must be registered as calibrated equipment", nevertheless there are two crimping tools in the electrical shop with no calibration labels. Pneumatic shop. The test stand # LT0011448 had a gauge out of cali	Corrective Action Plan Accepted	5/7/2007
Saab Ab-Aviocomp	Arboga	SW	10/28/2006	9/12/2005	34.5	1	1. Maintenance Process - FAA Form 8130-3, block 9, has the word "Various" in it. This is contrary to Order 8130-21. Air agency personnel were instructed of the proper entry to be use in this block. 2. The repair station does not have an approved maintenance functions list for the painting of avionics parts. 3. Manual System - The accountable manager's statement, part 7.4, addresses FAA Special Conditions. This statement must be removed from the manual. The Netherlands is not under a BASA/MIP agreement. 4. Section 7.6, "Extent of Approval", has references to the Brussels IFO. 5. On the comparison chart section "Limited Ratings" is referenced as 145.33; this should read 145.61, please make the necessary corrections. 6. Housing and Facilities - 6) The stock room does not have an ESD station to handle this type of parts.	Corrective Action Plan Accepted	10/7/2007
Saab Ab-Aviocomp	Linkoeping	SW	2/23/2007	2/20/2006	73	2	Repair Station Manual, Quality Manual, OEM Manual and Procedures, Calibration	Corrective Action Plan Accepted	2/8/2007
Saab Aviocomp Rias	Schiphol	NL	12/1/2006	11/13/2005	19	1	Repair Station Manual, Tooling, OEM Manual and Procedures, Calibration	Corrective Action Plan Accepted	12/7/2007
Sabena Technics Bru	Zaventem	BE	2/9/2007	1/16/2006	124	3	Parts and Materials: 1. Numerous expired shelf-life "O-rings" and gaskets-packaging are located in the instrument shop. Reference 14 CFR 145.109. Some of these units date back to 1972. Sabena Technics' Technical Standards Manual reference number 9710-1, paragraph 4.4, states "the recommended maximum accumulated age, at installation, of elastomeric parts that are subject to age control is 40 quarters since cure date". (10-years). 2. Several products were found with expired shelf life throughout the composite structures shop. Reference 14 CFR 145.109. Examples: A can of Epocast 1511-B. Expired since February 6, 2007. Several epoxy tubes expired since January 2007. Quality Control: 1. Sabena Technics performs calibration of test equipment with "standards" which are subsequently utilized to make airworthiness determinations on articles for return to service.	Corrective Action Plan Accepted	2/8/2007

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							This practice is contrary to FAA Order 8300.10 states the following "The tool or test equipment used as a standard for performing calibrations cannot be used to perform maintenance after it is calibrated and before being used as an in-house calibration standard". Reference: 14 CFR 145.211, and FAA Order 8300.10, section 2, chapter 86. Air Carrier Requirements: 1. The line handling agreement with American Airlines states the following with regard to aircraft release qualification requirements, "Individuals must hold a valid FAA Airframe and Powerplant (A&P) Certificate". Presently, there are no persons in the Sabena Line Maintenance organization that have an FAA A&P Certificate. Reference: Line Handling Agreement, Annex 1 to Annex B1.0. Maintenance processes: 1. Shop air that is used for parts cleaning in the accessory shop is not regulated. For example, the cleaning procedures in several of the CMM's specify a maximum air pressure of 20 PSI. The shop air pressure is 103 PSI. Reference 14 CFR part 43.13 and part 145.201 1. In the Accessory Shop, Job Card number 7 372 545 for a Ball Screw Actuator is completed in such a way that it is not possible to determine if Service Bulletin CFM56-75-024 was complied with. Reference 14 CFR part 43.13 and part 145.201. 2. Emergency equipment shop – CMM 25-60-59 for evacuation slide P/N D31591-478 requires the slide pressure and time of day be recorded during the overpressure test but this information is not being recorded. Reference 14 CFR part 43.13 and part 145.201. 3. Landing gear shop - Job card 4 266 189 for overhaul of Messier-Dowty LG pin P/N 200877212 requires chrome plating during repair. The Messier-Dowty standard practices manual M-DLPS101, chapter 20-00-01 describes the chemical "recipe" of the solution to be used during the chrome plating process. However, the solution used by Sabena (PS214) does not match the Messier-Dowty chemical solution. Reference 14 CFR part 43.13 and part 145.201. 4. The repair station could not demonstrate equipment manufacturer's concurrence for use of chemical substitutions (equivalent chemicals).		

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							It appears that equivalency determinations are made by the chemical laboratory, but not provided to the equipment manufacturer for review and approval. Reference 14 CFR part 43.13 and part 145.201. Noted in the Brake Shop for cleaning solvents Noted in the Landing Gear Shop for media blasting and stripping chemicals. Appears to be a trend among all shops. 1. The repair station does follow airframe manufacturer requirements to pull and tag circuit breakers on aircraft that are in a scheduled maintenance check (i.e. C-Check). This requirement is noted in the respective aircraft maintenance manuals, but not being accomplished. Reference 14 CFR part 43.13 and part 145.201. 2. A repair of an inboard aft flap assembly was properly performed at the composite structures shop using a workshop card referencing the 737-300 SRM 51-70-10. Nevertheless, step 22 of the Sabena process reads incorrect temperature ranges conflicting with the SRM information. Workshop card 57-00022, step 22 requires heat-up of the material at a rate of 6 degrees Celsius per minute.		
							The Boeing 737-300 SRM 51-70-10 pg 249 specifies a rate of 2+/- 1 degree Celsius. Reference 14 CFR part 43.13 and part 145.201. Technical Data: 1. The repair station could not demonstrate that current manufacturer's manuals were available for use. Reference 14 CFR part 43.13 and 145.109(d). Example: The repair station maintains a Duke overhaul manual 49-30-01 for pump P/N 4592-00 revision date September 15, 1976. It could not be shown that the currency of this manual has been checked since 2001. Housing and Facilities: 1. The repair station could not demonstrate that it has the facilities for properly performing the maintenance, preventive maintenance, or alterations of articles for which it is rated. Reference 14 CFR 145.103. Examples: Saft Component Maintenance Manual 24-31-05 requires a dry compressed air source, less than 20 psi. The battery shop is using a high pressure air source and no water trap to ensure dry air is supplied during maintenance. Other requirements absent from the shop are the use of safety goggles, protective apron, and non-acid petroleum jelly for the lubrication of links during assembly. Vent-valve test requires a low pressure dial gauge; the one being used is not suitable for proper measurements due to the gauge increments being to large. Personnel at the battery shop are not taking the precautionary measures stated in the maintenance manual such as the removal of jewelry during maintenance. 1. Composite "Pre-preg" rolls are being kept in the freezer at the composite structure shop on a vertical position. This practice might cause resins to settle at the bottom of the roll creating a possible uneven material distribution on the surface. Tools and Equipment: The repair station could not demonstrate that all test and inspection equipment used to make airworthiness determinations are calibrated to a standard acceptable to the FAA per 14 CFR part 145.109(b).		

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							Examples: 2 Two Crimping tools appear to never have been calibrated (tool Burndy Hytool M8ND and tool AMP 854148-1). The two tools are located in the "B-737 New Generation" tools area, and are separate from the tool drawer where all other crimping tools are stored and are properly calibrated. Ammeter on the magnetic particle inspection (MPI) in the landing gear shop was being calibrated on a one year interval but the MPI ASTM standard requires a six month interval. This item was corrected prior to the completion of the audit.		
Safair Pty Ltd	Bonaero Park	SF	5/22/2006	5/20/2005	84.75	3	1. CAPABILITY LIST / ACTIVITY REPORT In many cases, the Activity List shows all detail parts of various assemblies. In future, this should not be done. Please list only the article receiving the FAA return to service. In some cases, the activity list shows work that was completed and returned to service by another FAA certified R/S. Please list only the work accomplished by SAFAIR on the annual activity report. 2. SUB-CONTRACTED FUNCTIONS Please revise the MOE listing of FAA Approved Maintenance Functions per our discussion. There have been two previous FAA Approvals that are incorrect. FAA approves only the maintenance function, not the agency performing the function. The listing should only contain functions sub-contracted to non-FAA Certificated facilities. Additionally, the following functions should not appear on the FAA listing: (1) "up to & including C check" (2) Aircraft Line Maintenance (3) Calibration (4) Engine Overhaul & Aircraft Maintenance (5) Calibration & (6) Facility Cleaning. 3. TRAINING The Training Program required by FAR 145.163 must be submitted for FAA Approval no later than August 31, 2006. 4. WHEEL & BRAKE SHOP Work Order # AS569333 covered the installation of a recapped tire. The tire had been issued an EASA Form One without an FAA release. All work that receives an FAA release must also have FAA return to service on all parts consumed in the repair. Work Order # AS569333 referenced manual 32-40-60, The correct manual should have been 32-40-79. 5. SHELF LIFED ITEMS Throughout the facility, many adhesives, lubricants, and other compounds are in use without having shelf life displayed on the container. This is a repeat from the previous audit. 6. STORES & TRACEABILITY OF PURCHASED PARTS Work Order # AS569333 consumed a bolt part number MS 21250-10056. Stores personnel were unable to produce traceability to the receiving documents. No batch number was recorded.	Corrective Action Plan Accepted	5/7/2007

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							7. Work Order # AS567884 used a retainer pin part number 2603038. There was no FAA Form 8130-3. The only receiving documents available were "certificates of conformance" from various operators and parts distributors. 8. In the oil store we discovered that many lubricants had no shelf life identification. Examples are two cases of BP Turbo Oil 2380; two cases of Skydrol LD-4; and two plus cases of Mobil Jet II with no company expiry date tag. This is a repeat item from the previous years' audit. 9. HANGAR 1 Inspection of the area found the aircraft not grounded. 10. Inspection of the right wing found a red tag tied to a component inside the wing. The tag was hanging out side through the access panel. The tag indicated maintenance in the area and made reference to back side of the tag for details. The back side of the tag was blank. 11. HANGAR 4 Several aircraft parts were removed and placed on parts racks without ID tags. 12. COMPOSITE SHOP An inspection of the composite shop MOE indicated it was at revision 6. The current SAFAIR MOE is at revision 9.		
							13. SHEET METAL SHOP Inspection of the sheet metal shop found an oven being used without any company identification or calibration tags displayed. 14. A caliper was found in the sheet metal shop with no identification number and no calibration sticker. Further investigation showed that the tool belonged to an employee. All employee owned tools require calibration in the same manner as company owned tools. 15. Base Compound sealant was found open and in use, displaying a shelf life date of April, 2006. 16. SHEET METAL SCRAP AREA Inspection of the sheet metal scrap area found an aircraft fire bottle without an identification tag. 17. Multiple tires were found without identification tags.		
Sas Component Group A-S	Kastrup	DA	9/1/2006	9/12/2005	64	2	MOE Inspection of your MOE, section 7.2 requires a full quality audit once a year. Inspection of the audit records indicate this time frame is not being followed. The MOE does not adequately reflect both calibration methods that are used to monitor the calibration program. Ref: 14 CFR 145.211 Summary of Employment Inspection of your FAA required summary of Employment does not meet the requirement of the Federal Aviation Regulation. This is a repeat finding. Ref: 14 CFR 145.161 Tool Equivalency The Federal Aviation Regulation states that the equipment, tools, and materials must be those recommended by the manufacturer of the article or must be at least equivalent to those recommended by the manufacturer and acceptable to the FAA. Currently the Repair Station's tool equivalency program does not appear to be adequate or working for the following reasons: Three different forms are used throughout the different departments to document tool equivalency. Of the three forms none matched the form documented in the MOE. There does not appear to be documentation used in determining tool e	Corrective Action Plan Accepted	9/7/2007
Sas Component Group A-S	Oslo	NO	10/27/2006	10/19/2005	42	2			10/7/2007
Sas Component Group A-S	Stockholm-Arl	SW	11/8/2006	11/17/2005	70.5	3	Company Procedures, OEM Manual and Procedures, Forms/Records, Segregation of Parts, Calibration	Corrective Action Plan Accepted/EIR 2006EA330056	11/7/2007

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Sas Technical Services Ab	N-0080 Oslo	NO	10/25/2006	10/11/2005	52	2	Calibration Program It appears that the Repair Station does not have an adequate program that will ensure that all tools requiring calibration are calibrated at regular intervals. Currently one month prior to an article being due for calibration an e-mail is sent to the department requesting the item be turned in for calibration. If the article is not turned in by the calibration date, then another e-mail is sent out again requesting action. However, if the article is still not surrendered, no further action is taken. This has resulted in 6 items not being calibrated as of the end of August, 2006. This appears to be contrary to the MOE. Repair Station Maintenance Operations Exposition (MOE) There does not appear to be adequate procedures reflecting who, when, and documentation requirements for conducting a Preliminary Inspection. This appears to be contrary to CFR 145.211. There does not appear to be adequate procedures reflecting who, when, and documentation requirements for conducting a Hidden Damage Inspection. This appears to be contrary to CFR 145.211. There does not appear to be adequate procedures reflecting	Corrective Action Plan Accepted by IFO all descripancies corrected by Air Agency	10/7/2007
Sas Technical Services Ab	Stockholm	SW	11/7/2006	10/2/2005	70.5	3	Calibration Program Inspection of the Repair Station calibration procedures does not have an adequate program that will ensure that all tools requiring calibration are calibrated at regular intervals. Currently, one month prior to an article being due for calibration, an e-mail/phone call is sent to the department requesting the item to be turned in for calibration. Further conversations with STS calibration employees revealed that the procedure to control tools not being submitted for calibration in a timely manor for calibration is to file a nonconformance report. Inspection of this report found that it was managed through the quality department and gives a final resolution to the individual who submits the report. This procedure is not being followed at all times nor is addressed in STS's MOE. Example of this is tool part number 612-520-0101, a Digital Thermometer. Ref 14 CFR 145.109. Inspection of the calibration software (Tool Management System) used for tracking the calibration cycles found calibration due dates are shown in day/month/year while the calibration stickers on the items only show month year. Currently STS 1.Hydraulic Shop Test Stand has three indicator covers missing and two gauges are not secure. 2. Tube Repair Shop - numerous jigs that were manufactured by the tube repair shop had no documentation to reflect that the tools were equal to that of the manufacturer. The shop had a list of 56 tools that they had requested equivalency determination in the year of 2004. As to date, no determination was made and the jigs are currently on shelves along with the approve jigs. 3. Hydraulic Shop - Vickers CMM 29-10-47 requires pump delivery flows to be checked at various specific measurements but the instrument used for checking this (OC38) is marked "no calibration required". 4. Electro-Mechanical Department - to properly test actuator P/N MA11A1142, requires an "actuator low voltage test" to be accomplished. This requires the use of a 50 in/lb reference. Currently the repair station weights used to comply with this test procedure are not calibrated.	Corrective Action Plan Accepted	11/7/2007

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							5. Electrical Fabrication Shop - Engine Ignition Exciter Model number 42074, requires the use of a calibrated pressure gauge and a micrometer for testing of the component. Currently only the pressure gauge is being calibrated. 6. Instrument Shop - The testing of altimeter-radio, part number 6223890015, requires an altimeter indicator as part of the test equipment. When reviewed the indicator was not calibrated or identified as part of the tool control program. 7. Library - CMM 52-50-02 for lock assembly 20676-411 is not available even though this component is on the "FAA Repair Station Capability List". 8. Library - Saudi Arabian repair station technical publication TP&P 7-30 paragraph 8.2.2 requires distribution of publications two weeks after receipt. At least two publications were not distributed within the two week period: 1) A300 Support Equipment Summary / Tool & Equipment Index dated Sept 1, 2005 and received Oct. 2005 has not yet been distributed, 2) V2500 SB CD dated 1-1-06 does not have a receiving document and it could not be determined when the publication was received.		
							9. Library - Not all manuals are being periodically checked for currency. Actuator Rotary CMM 49-50-01 for P/N R6200M3-11 was shown in the Saudi computer system to be current with revision 6 dated Feb. 15, 2000, but the current revision was revision 7 dated 15 Sept 2003. 10. Emergency Equipment - Work order WIP HHJG. The overhaul manual 25-66-16 for the slide raft had two temporary revisions that were not accounted for. 1) Temporary revision #2 was issued on March 2000 and the page affected was page 502. The current page listed in the manual is dated 1996 while the revision was issued in the year of 2000. 2) Temporary revision 1 was issued in 1999. The pages affected were 101, 502, and 601. However the manual currently lists the old pages dated 1996. Although the changes were issued long ago, inspection and overhauled were still being conducted with outdated data.		
							11. Emergency Equipment FAA Repair Station Capability List shows several fire extinguishers with the limit of "TST" (Test), but the repair station does not have U.S. Department of Transportation (DOT) approval for hydrostatic testing. These items should be removed from the FAA capability list until DOT approval is obtained. 12. Electro-Mechanical Department - The assembly of a Linear Actuator requires that the wiring be soldered to MIL-SPEC-454. There does not appear to be a copy of the manual available for reference in the repair department. 13. Oven Repair Shop - The testing of a Coffee maker, model number 56668 only appears to contain operational procedures versus tests procedures to be used in determining the airworthiness of the article. 14. High Bay Stores - Traceability, segregation, and cleanliness of misc. small parts in the main stores are unacceptable. Unpackaged parts without any traceability were found in several drawers. Parts were miss-located in bins that were marked for a different part.		

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							Trays and parts installed in them were very dirty and often the parts were unprotected. 15. Landing Gear Shop - Scrap material awaiting final disposition inspection from engineering was not being stored in a controlled area. 16. Hydraulic Shop - Storage area for components awaiting disposition, under planning control, is inadequate. Boxes are stacked up and there are not adequate racks or shelves available for segregation of the parts 17. Sheet Metal Shop - Several rivets with different finishing were found in the same container 18. ATE Shop - The protection of several articles identified as "Electro Static Discharge" sensitive components (part number 4073400903) is not being provided when the items were stored by the repair department. 19. ATE Shop - The protection of several articles identified as "Electro Static Discharge" sensitive components (part number 4073400903) is not being provided when the items were removed by an avionics technician from the aircraft for repair.		
							20. Sheet Metal Shop - Work order WIP IRZD. A technician was observed fabricating a bracket for a Boeing 747 floor beam without any technical data or work instruction. The technician was using the removed floor beam as reference for the bend allowance and visual aids. The work package and instruction was later presented however, the drawing of the dates attached was different than that presented by engineering. The drawing date in the work package was 1996, the current version is 2001. 21. Electrical Shop - Engine Ignition Exciter Model number 42074 requires the flange to have a surface flatness not to exceed .001. Currently the repair station is not complying with this requirement. 22. Avionics - The testing of an Aural Warning, part number 65-54499-26, requires the article to be positioned at a 15 degree angle. The repair station currently is not complying with the requirement. 23. Engine Shop - Labeling of shelf life material (consumables) differs from the system described in the organization's current procedures manual. Color code system was being used which is not accepted by the organization. Items utilizing this system were relabeled conforming to the current procedures. This item was corrected prior to the completion of the audit. The repair station should determine that this is not a systematic problem. 24. Work Order Review - The FAA form 8130-3 issued for work orders WIP SP01, and TA 92 packages were very confusing. For example, approved and non-approve section blocks 14 were checked along with blocks 19 of the return to service section. On occasions, the block 19 was not completed at all. The instruction listed in section 13 of the repair station manual, page 6 of 33 is incorrect also, the blocks are also checked. This is contrary to FAA order 8130.21. 25. Work Order Review - Work Order WIP LPA3. Part of the repair station certificate number was missing on the FAA form 8130-3 that was used as an FAA returned to service. 25. Work Order Review - Work Order WIP LPA3.		

AVIATION SAFETY/FLIGHT STANDARDS - REPAIR STATION INSPECTIONS AND RESULTS

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Saudi Arabian Airlines	Jeddah	SA	4/20/2007	5/12/2006	209	4	Part of the repair station certificate number was missing on the FAA form 8130-3 that was used as an FAA returned to service. 26. Work Order Review - Work Order WIP LPA3. Part of the repair station certificate number was missing on the FAA form 8130-3 that was used as an FAA returned to service. 27. ATE Shop - The ATE department does not appear to be complying with the Repair Stations Manual with regard to properly tagging of an item identified as a "Life Limited Item". 28. Training - No training records were available for Mr. E V Mohammed Koya, Certifying staff, Special Fight Services.	1. The Vickers Hydraulic Test Stand has been evaluated and removed from to facilate complete gauge replacemenmt. Gauges will be replaced by July 1, 2006. 2. Tooling without equevelancy is placed in a storage area and The 'Tool/Test Equipment equivalency Handling' procedure will be revised and distributed prior to 01 June 2006. 3 The Hydraulic flow meter was calibrated and placed on the tool calibartion list. 4. The weights were calibrated and placed on the tool calibration list. 5 The tooling calubration tag was improperly placed on the incorrect instrument. The tag has been repositioned to show both tools had actually been calibrated. 6The radio altemeter has been calibrated and placed on th etool calibartion list. 7. The FAA Capability list is hereby revised to exclude the aforementioned Sky tock part number. Further, the process titled "In-house capability" has been revised to include an 105 form for use to record deleted capability. 8. The tech manual revision process has been revised to correct th eproblem. 9. A comprehensive phased program is under-way to establish the current revision status of vendor manuals and to e 20. Sheet Metal Shop - The activity of fabrication Aircraft components	4/8/2007
Saudi Aramco Avionics	Dhahran	SA	5/23/2006	4/30/2005	38	2	None		5/7/2007
Senior Aerospace Bosman Bv	3081Aa Rotterdam	NL	4/20/2006	8/3/2005	21.5	1	Company Procedures, OEM Manual and Procedures, Calibration, Parts	Corrective Action Plan Accepted	4/7/2007
Shl Division Israel Aircraft Industrie	Tel Aviv	IS	6/26/2006	8/15/2005	25	1	None		6/7/2007
Skf Industrie S P A Skf Avio	Villar Perosa (To)	IT	1/3/2007	3/30/2005	12	1	Repair Station Manual, Company Procedures, Parts	Corrective Action Plan Accepted	1/8/2007
Snecma Morocco Engine Services	Nouasser, Casabland	MO	4/2/2007	3/16/2006	26.5	1	Repair Station Manual, Personnel roster/Employment Summary, Forms/Records, Parts	Corrective Action Plan Accepted	4/8/2007
Snecma Services Brussels	Zaventem	BE	3/12/2007	3/9/2006	29	1	Repair Station Manual, Quality Manual, OEM Manual and Procedures, Parts	Corrective Action Plan Accepted	3/8/2007
Sonaca Sa	Gosselies	BE	10/27/2006	12/2/2005	29	1	1. During a review of two A320 work packages (163-1153 and 163-1234) several paperwork discrepancies were noted. Reference: 14 CFR Part 145.211 (c)(1)(vi). 2. The preliminary and hidden damages inspections sign offs is not on all checklists for items that work is performed on. Reference: 14 CFR Part 145.211 (ii)(iii). 3. The training syllabus dated 2004 is being used by the Training subcontractor Technifutur and is referencing the old CFR 145 instead of the new one. Reference: 14 CFR Part 145.209 (e). 4. The certifying staff inspection card references that they are authorized to sign the EASA Form One only. A further review of all records indicate that they are trained and authorized to sign the FAA 8130.3 also which was not listed on the card. Reference: 14 CFR Part 145.211 (vii). 5. Unable to find information on the scrapping procedure in the MOE or FAA IPM and use of the red scrapping tag.	Corrective Action Plan Accepted	10/7/2007

AVIATION SAFETY/FLIGHT STANDARDS - REPAIR STATION INSPECTIONS AND RESULTS

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Sr Technics Switzerland	Zurich	SZ	6/30/2006	8/25/2006	99	3	Procedures / Paperwork Review. The repair station could not demonstrate that contracting maintenance functions to non-certificated sources is always FAA approved as required by CFR 14 Part 145.217(a)(1). The process of Magnetic Particle Testing of Blades/Vanes was approved by the repair station on August 10, 2005 but was never submitted to the FAA for approval. Engine Shop: The repair station could not demonstrate that sufficient work space and areas for the proper segregation and protection of articles during all maintenance, preventive maintenance, or alterations was available as required by CFR 14 Part 145.103. Examples: The engine test cell area was being used for storage of parts associated with quick engine build-up (QEC), parts associated with engines undergoing maintenance (marshalling storage), and one engine that was being parted out. The engine parts (blades) incoming inspection area is crowded with many incoming parts and racks stored in walkways and hallways. 2. The repair station could not demonstrate that it continues to have facilities to maintain the equipment they are rated for per 145.103. The Pratt and Whitney JT8D engine is no longer supported. The test cell is not currently available, and tool and equipment normally used for repair / overhaul are marked as unserviceable. Cleaning Processes: Cleaning tank 950 for hot water rinse does not comply with SR Technics MAT 62031 and has temperature range different than the Pratt & Whitney (P&W) Standard Practices Manual. The MAT requires the range of water temperature to be 80C to 93C but the computer program is set to 73C to 84C. The P&W manual recommends 66-93. This item was corrected before the completion of the FAA audit by changing the MAT to match the P&W Standard Practices manual and reprogramming the computer program to match. Composite Shop: The repair station was using a non certificated sub-contractor to perform autoclave processes but this function was not listed on the FAA approved function list as required by CFR 14 Part 145.217. Repair Station Manual:	Corrective Action Plan Accepted	6/7/2007

AVIATION SAFETY/FLIGHT STANDARDS - REPAIR STATION INSPECTIONS AND RESULTS

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							SR Technics' MOE / FAA Supplement 7 do not adequately address personnel rosters as required by CFR 14 Part 145.161. Only Certifying Staff is addressed, it omits Management, Supervisory, and Inspection Personnel. It was difficult to get the roster out of the computer system. Stores: Stores personnel were unable to show a Certificate of Conformance with the required 14 CFR 21.853 fire blocking statement on the following material: P/N: P505 FireBlocker, 150 CM Wide, P/O: 23302240/1 Further investigation showed that the P/O was incorrectly coded in the purchasing department. Additionally, both receiving inspection and upholstery personnel failed to note that the 25.853 statement was missing. The material should be quarantined. Additionally, we suggest that a review of other textile material should be conducted. Technical Library: In the wheel & brake shop it was noted that CMM 32-46-13 is at revision 12. In the technical library it was discovered that revision 13 was issued by the OEM in March of 2005. SR Technics received revision 13 in August of 2005.		
							The revision was not distributed until April of 2006. To this date, revision 13 is still not inserted into the manual. Reference 14 CFR Part 145.201(a)(1) and Part 43.13(a).		
Standard Aero B V	Tilburg	NL	1/23/2007	2/9/2006	15	1	Repair Station Manual, OEM Manual and Procedures	Corrective Action Plan Accepted	1/8/2007
Stork Sp Aerospace Bv	Geldrop	NL	12/22/2006	5/24/2006	26	1	Repair Station Manual, Quality Manual, Capabilities List, OEM Manual and Procedures	Corrective Action Plan Accepted	12/7/2007
T G L Aviation Rubber Company Lt	Akko	IS	5/18/2006	5/10/2005	17	1	Company Procedures	Corrective Action Plan Accepted	5/7/2007
Tag Aviation Sa	Geneva	SZ	12/14/2006	12/10/2005	96	3	Repair Station Manual, Training Program/Records, Personnel roster/Employment Summary, OEM Manual and Procedures, Forms/Records, Segregation of Parts, Parts	Corrective Action Plan Accepted	12/7/2007
Tap Air Portugal Ep	Lisbon	PO	12/24/2006	12/12/2005	164	4	Certificate Requirements: 1. When conducting an audit in support of adding an article to the capability list the Radio, Instrument, and Hydraulic/Pneumatic department are not thoroughly evaluating the following: Substituting tools and test equipment required during the testing and or repair process. (Radio, H/P and Inst) (Ref 145.215) A tool evaluation is not properly being conducted when substituting what is termed as Standard tools to include multi-meters, power supplies, etc. (Radio, Inst) (Ref 145.215) Substituting chemicals required during the cleaning process. (Radio, Inst, P/H) (Ref 145.215) Note: The chemical department is not consulted during the initial capability audit. Their involvement begins after the article is added to the capability list and only when the technician notices that the required chemical is not located in the department. Ensuring that all procedures are carried out in accordance with the manufactures recommended procedures. (H/P, Inst) (Ref 145.215)	Corrective Action Plan Accepted	12/7/2007

AVIATION SAFETY/FLIGHT STANDARDS - REPAIR STATION INSPECTIONS AND RESULTS

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							Note: The aforementioned issues were noted on articles that were recently added to the capability list. Manuals:1. Uncontrolled document (MPS-AEQ 88-27) located in Composite Shop near storage freezer. Document was not identified as an uncontrolled copy. 2. Procedures used to track freezer out time for prepreg and adhesive film appear inadequate. Personnel in the composite shop were unable to demonstrate determination of "Manu fact. Life Units" using MPS-AEQ 88-27. Technicians indicated that they always use 240 units as the starting value for all prepreg and adhesive film. There was no documentation to support 240 units as the initial life units. 3 In the Radio and Instrument departments the cleaning and repair sections of several maintenance manuals reference the use of "Standard Manual Hardware Practices" manuals for the cleaning and repair of components. These required manuals are not available in the individual departments and are currently only located in the engineering department which is located in a different part of the building. (Ref 145.215) Housing and Facilities: 1The housekeeping at the engine shop bearing cleaning area is not up to industry standards. 14 CFR 145-103.2. The computer room used to look up Maintenance publications in the North end of hangar aircraft did not have a printer available in that room. The printer was several doors down in the hangar. Reference CFR 14 Part 145.103. 3. The avionics room in the north side of hangar 6 had several housekeeping issues. Reference CFR 14 Part 145.103: A box of untraceable connector pins / washers / and caps was found. Several uncontrolled documents or excerpts from manuals were found. 1. The interior cabin area (including an upstairs area) in the north side of hangar 6 had several housekeeping issues. Reference CFR 14 Part 145.103: There were many removed parts without tags Aircraft seats were found with removal tags, but the tags were not complete. There was trash throughout the area, on the floors, shelves, etc. Uncontrolled copies of A310 documents (Fed-Ex) were found upstairs in the north end of hangar 6.		

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							Grill liner without traceability information was found upstairs in the north end of hangar 6. A box of two-part epoxy was found in a cabinet but the tubes of epoxy did not have expiry information. There was information on the box. There was a large quantity of scrap interior parts, in the area just outside the north side of hangar 6, that were not marked scrap. 1. There were 4 cans of sealant with expired shelf life in the hangar 6 parts room. Reference CFR 14 Part 145.103 and Part 43.13 2. At least 16 lights are burned out in hangar 6. Reference CFR 14 Part 145.103 3 Two pieces of sheet-metal without traceability information were found in hangar 6 sheet metal shop. Reference CFR 14 Part 43.13 Tools and Equipment: 1 Engine Shop NDT: Pressure tube tester, machine #1083 pressure lines were found uncap or open. Equipment also need to be clean and housekeeping need to be maintain in the area. 14CFR 145.109. 2. Engine Shop Tool Room: Tools that are waiting to be sending out for calibration should be segregated from the serviceable tools. 14 CFR 145.109.		
							3 Wheel Shop: Wheel bearing inspection area has a magnifying glass with light, but there is not a power supply (electrical plug) available in the room for the light. Reference CFR 14 Part 145.109 and 43.13. 4. Wheel CMM 32-46-67 requires a 10X magnifying glass when inspecting the wheel but there was not one available in the room where inspections were being performed. Reference CFR 14 Part 145.109 and 43.13. 5. ASTM 1444 for magnetic particle inspections requires the gaussmeter accuracy to be checked every 6 months but the meters in the Wheel Inspection area were marked "for reference only". Reference CFR 14 Part 145.109 and Part 43.13. Technical Data: 1. A review of EASA form 1 dual release documents reflect block 22 is not properly completed. Work orders #3645093 and #355829 only identifies the inspector's first name.		
							2. Work order #3555829 reflects that a test was conducted. However, a review of the documentation of work accomplished on the technical report reflects that a cleaning action was conducted. This is considered to be a repair action but was not reflected on EASA form 1.		

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Techspace Aero	Milmort (Herstal)	BE	4/19/2007	4/13/2006	34	1	Certification Requirements: 1. Inspection in the NDT area found no equipment to perform Eddy Current inspections. Further inspection found no activity for Eddy Current inspection. Techspace Aero does not meet the requirements to maintain this rating. Reference: 14 CFR 145.51 2. Inspection for the Specialized Services Limited Ratings found multiple services listed on the Operations Specifications not being performed for FAA use. The ratings listed below are being removed from your operations specification as no past or future activity of these items will be performed. Reference: 14 CFR 145.51 Nickel Plating Chromatation Diffused Coating Furnace Brazing Shot Peening Manuals:1. The procedures in the inspection procedures manual for the filling out of FAA Form 8130-3 gives in accurate information due to FAA Order 8130.21 revision. Reference IPM paragraph 7.29.1 2. Suspected Unapproved Parts reference in the IPM gives inaccurate reference of the Advisory Circular and reporting requirements. Reference: IPM paragraph 7.5	Corrective Action Plan Accepted	4/8/2007
							3. Inspection Procedures Manual gives in accurate reporting requirements for the processing of the FAA Malfunction and Defect Report. Reference IPM page 64 paragraph 7.30 and 14 CFR Part 145.221. Technical Data: 1. The MOTS 030-1 for Anodic Treatment of Aluminum does not show the current revision as described in AMS 2471. Reference: 14 CFR 43.13 and 145.211(c) (v). This revision is currently in process but has not as this date been implemented. 2. Currently the thermal couple inspection for heat treatment time is currently performed every 6 months. AMS 2750 shows inspections due every 3 months. Reference: 14 CFR 145.211(c) (v) Techspace Aero is currently aware of the change to the AMS but as of this date has not implemented the new inspection requirement. Tools and Equipment: 1. Inspection of the NDT area for Ultrasonic inspection found the test equipment out of calibration. This equipment has been in use since the calibration due date of the 08 week of 2007. Reference: 14 CFR 145.109		

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							Parts and Materials: 1.In the consumable stores area multiple items were identified as having shelf life expiration dates listed on the manufactures label. Techspace Aeros tags shows no shelf life expiration date. Example of these items are: Vaseline Blanche, Kenent Diamanteimulse liquid, Metaletch and Ardrox 6333. Furthermore, Molykote D321R showed the same no expiration date sticker on it with a receiving date of 2001. The manufactures label shows expiration date of 18 months. Reference: 14 CFR 145.109 2. Inspection in the Accessories area found multiple consumables being stored past the shelf life expiration date. Reference: 14 CFR 145.109 These consumables were removed. 3. Inspection of the Accessories area found hardware being stored with no traceability or identification. Reference: 14 CFR 145.109 : 1. Review of training found that Techspace Aero could not demonstrate FAA Regulation Recurrent Training for the certifying staff. Reference: 14 CFR 145.163 2. Review of training found that Techspace Aero could not demonstrate FAA Inspection Procedure Manual/Quality Control manual recurrent training for certifying staff. Reference: 14 CFR 145.163 3. Review of The FAA Approved training program gives individuals responsibility and procedures to evaluate training needs for employees. These employees have not received training on how to perform this function. Reference: 14 CFR 145.163 Maintenance Process: 1. Inspection of Work Order (Form tracking number LU2527) shows overhaul performed on a CFM-56-3 Lubrication Unit and approved for return to service on EASA Form 1 with FAA dual release. Review of this work order packet work routers showed repairs and inspections only performed on this article. Block 12 of the EASA Form 1 should indicate the type of maintenance performed. Reference: Official Journal of the European Union (Part-145) Contract Maintenance: 1. Inspection of the FAA Approved Contract Maintenance list does not meet the requirement of the FAA Regulation. Reference: 14 CFR 145.217		
Transaero Airlines	Moscow	RS		6/13/2005	66.5	2	Records of Management, Supervisory, and Inspection Personnel 1. Rosters for management and supervisory (14 CFR 145.213), inspection (14 CFR 145.155) and personnel authorized to sign a maintenance release (14 CFR 145.157) were not available. This may be contrary to 14 CFR 145.161. 2. No delegation of duties stated for the accountable manager in case of his/her absence. Serviceable Tire Storage 3. There were no procedures available for control of serviceable tires held in storage. It is not known if there are temperature, humidity, or rotational limitations that may be required. A review of manufacturer's maintenance instructions must be made and procedures developed from those instructions to ensure tires are maintained in a serviceable state while in storage. Reference 14 CFR 43.13(b). Oil Stores Ramp Side 4. Two lubricant dispensers in the oil storage area were not identified as to the contents.	Corrective Action Plan Accepted	5/7/2007

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			5/16/2006				Since this is a repeat of the same discrepancy noted during last year's inspection please submit a detailed action plan with corrective action to ensure it is completed. Additionally an open container of turbine engine oil was stored in the area with unopened containers. The possibility of contamination makes this an unacceptable practice. Reference 14 CFR Part 43.13(b) and 145.109(a)(c). Ramp 5. This concern is voiced because of the plan to add several "N" registered aircraft to the repair station maintenance workload. During the visit to the ramp side facility it was evident that space is at a premium. At the present level of activity work areas appeared cramped with little room for expansion. This area of concern will be carefully reviewed during the next visit. Reference 14 CFR Part 145.103(a)(1). Hanger Area 6. A grease gun was observed without any identification as to contents. Petroleum, oils, and lubricants (POL) products must be maintained with the same regard for safety as repair parts receive. This item coupled with concern number 3 above indicates the Transaero needs to review the POL procedures. Reference FAR 43.13(b). "Special Interior Room" 7. Observed numerous cartons of parts stored in the room without a certification source or identity as to serviceability. It was stated that most of the parts were for the B-757 that Transaero no longer maintains. These parts must be removed and segregated until accounted for. Reference 14 CFR Part 145.109(a). Fabric Storage Area 8. This area requires organizing and a complete inventory to determine serviceability and certification of the many new and used items. Additionally there are several items stored in the same area with no relation to fabrics and no label as to serviceability. Reference 14 CFR Part 145.109(a). Tools and Equipment 9. According to RSM part 4.2, section 4.2.3, pg.1, there is not a mutual agreement on calibration standards between Russia and the United States or Russia and the European Union. Therefore, only laboratories having certificates issued by NIST or organizations recognized by NIST will be used on all tools. Nevertheless, all the multimeters in the stock room area hold calibrations from the Russian Metrology Laboratory. This may be contrary to 14 CFR 145.211. Housing and facilities 10. There is no ESD station for receiving and processing ESD components. This may be contrary to 14 CFR 145.103. 11. Numerous ESD components boxes were found open. The components were not properly packaged with ESD packaging material; in other cases the components were left unprotected in boxes not approved for ESD material. This is a repetitive finding from the previous year. 12. During the inspection it was noticed that several areas of the repair station are in need of housekeeping. Reference 14 CFR 145.103.		
Transairco S A	1215 Geneva Airport	SZ	10/19/2006	8/20/2005	61	2	Repair Station Manual, Training Program/Records, Tooling, Capabilities List, Forms/Records, Facilities	Corrective Action Plan Accepted	10/7/2007

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Turk Hava Yollari Teknik A S	Istanbul	TU	11/13/2006	1/23/2006	140	3	Records Systems A review of several work orders reflect that Block 13 of JAA Form 1, titled "Remarks", is not adequately completed. In accordance with JAA leaflet 22, Block 13 should include a description of block 12. This includes parts replaced, completion of Service Bulletins, Air Worthiness Directives, or a reference as to where to go to in order to retrieve additional information. 2. It is difficult to determine if a preliminary inspection was conducted during the accomplishment of Work order number 2E62002005, reflecting an overhaul of an APU 3800702. On two different documents, where a preliminary inspection is required to be documented, one is signed and the other is not. Reference 14 CFR Part 145.219. 3. When questioned as to the completion requirements of a preliminary inspection, the Chief of APU department stated that when an overhaul is conducted on the APU, a preliminary inspection is not required. There does not appear to be any documentation in the MOE that would allow preliminary inspection not to be conducted prior to disassembly. 4. A review of the documentation for test equipment s	Corrective Action Plan Accepted	11/7/2007
Umbra Cuscinetti S P A	Foligno (Pg)	IT	4/11/2007	5/24/2005	36	1	Use of current data, Quality Manual, Training Program/Records, Tooling	Corrective Action Plan Accepted	4/8/2007
Vibro-Meter S A	Villars-Sur-Glane	SZ	6/1/2006	7/25/2005	30	1	Tooling, Personnel roster/Employment Summary, Forms/Records	Corrective Action Plan Accepted	6/7/2007
Volvo Aero Corporation	Trollhattan	SW	12/15/2006	1/28/2006	60	2	1. A cross-reference statement is missing from return to service documents in block 13 (8130-3 / EASA Form 1). The content and use of the statement is addressed in FAA Order 8130.21E, as discussed during the inspection. 2. The capability list policy & procedure does not clearly explain the method used to manage the system and how parts are added or how a part is excluded. It also does not clearly explain the format of the document regarding the term "All". As discussed at the inspection, the policy and procedure should clearly define the system process and the format of the list. Reference: 14 CFR, Part 145.215(a). 3. A sampling of working documents revealed a PW-100 assembly inspection sheet with blank spaces that were not annotated with "N/A" to signify the block was not missed. This appears to be a trend among other shops using similar documents. Reference: 14 CFR, Part 145.211(a). 4. During the review of work orders, we discovered that some "Type 2" inspectors are not listed on the regulatory rosters required by 14 CFR 145.161. It appears that "Type 2" inspectors are Final Inspectors, and should be listed on the regulatory roster. Reference: 14 CFR, Part 145.161(a)(2). 5. In the JT-8 area we found an assembly inspection sheet in work that had a stamp at the top of a page of multiple inspection blocks and another stamp at the bottom of the page with a line drawn between the two. A discrepancy from last year identified the same type of finding with a corrective action stating that each block should be signed. There continues to be a difference in this area between the written policy and actual practice. Reference: 14 CFR, Part 145.211(a).	Corrective Action Plan Accepted	12/7/2007

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Volvo Aero Engine Services Ab	Bromma	SW	4/14/2007	1/15/2006	50	2	1. Final Assembly Area: Poor general housekeeping practices such as: Trash on floors, shelves, work benches, racks and stands. Old and new hardware (nuts, bolts, etc.) in various areas, with no obvious attempt to discard or segregate. Potential FOD items such as safety wire, and small hardware all around the work area. Stacks of empty plastic bins in the work area. Serviceable and unserviceable parts mixed with no obvious attempt to segregate or arrange. 2. Comprehensive Shutdown Plan: The FAA has not been presented with a clear synopsis of the VAES policy, procedure, surveillance and follow-up activities in support of the shutdown and maintenance of FAA regulatory compliance. Although verbal discussion indicates a plan is in place with management support, the condition of the final assembly area raises concern that the spirit of the plan has not been fully implemented at the shop floor level.	Corrective Action Plan Accepted	4/8/2007
Ytstruktur Arboga Ab	Arboga	SW	8/28/2006	10/15/2005	24.5	1	Quality Manual, Personnel roster/Employment Summary, Air Carrier Procedures	Corrective Action Plan Accepted	8/7/2007

INTERNATIONAL FEDERATION OF
PROFESSIONAL AND TECHNICAL ENGINEERS
AFL-CIO & CLC

Remarks of Louis Lucivero

Vice President
International Federation of Professional & Technical Engineers Local 20 (IFPTE), AFL-CIO

Prepared For:

House Transportation & Infrastructure Subcommittee on Aviation

Hearing:
The FAA's Oversight of Outsourced Air Carrier Maintenance

Thursday, March 29, 2007 - 10:00 am

Testimony of Louis Lucivero, Vice President
Engineers and Scientists of California (ESC)
International Federation of Professional and Technical Engineers
IFPTE Local 20, AFL-CIO

On behalf of the membership of the Engineers and Scientists of California (ESC), IFPTE Local 20, I am honored to submit this testimony to the House Transportation and Infrastructure Subcommittee on Aviation. I would like to thank Chairman Costello (D, IL) and Ranking Member Petri (R, WI) for the opportunity to submit the views of the membership of IFPTE Local 20. It goes without saying that Congressional scrutiny of the off shoring of domestic airline maintenance work is desperately needed and I applaud the Subcommittee for holding this hearing.

IFPTE Local 20 represents thousands of workers in the public, private and federal sectors. Among Local 20's membership are upwards of 300 engineers, technologists, and specialists employed by United Airlines and working at the San Francisco International Airport and Indianapolis Engineering Maintenance Center. As a United Airlines Senior Staff Technologist having more than 15 years with the company, I am one of many Local 20 members that work directly within the United Airlines FAA certified maintenance shop. I also serve as the Local 20 President for the United Airlines unit.

The history of the Federal Aviation Administration's (FAA) certification of foreign repair stations has been a controversial one, at best, and can be traced back to 1988 when the Federal Aviation Administration (FAA) created new rules that liberalized restrictions with respect to federal certifications of foreign aircraft repair stations

(*Federal Aviation Regulation [FAR] Part 145*). In effect, the 1988 FAA rules significantly lowered the bar for FAA certification of foreign repair stations.

As we all know FAA certification is considered the gold standard. However, having worked in this profession for many years maintaining United's domestic aircraft, I have seen first hand how the 1988 certification requirement changes have negatively impacted the quality of work and safety at United. The watering down of FAA certifications to accommodate foreign repair stations is creating a dangerous situation for the traveling public.

Before the 1988 FAA rule change, an aircraft would only be worked-on abroad if a foreign repair facility demonstrated a need to service aircraft engaged in International travel. In other words, FAA certifications were typically granted to repair stations at International HUBs along the normal international travel routes of domestic air carriers. It is worth noting that domestic aircraft were not sent abroad for the sole purpose of receiving both routine and significant mechanical work and upgrades. Now however this business practice is an all too common occurrence.

The 1988 rule change allowed for the prioritizing of bottom line business interests over that of the safety of the flying public. Simply stated the FAA created a rule that allowed for FAA certification of worldwide maintenance facilities not based on aircraft safety or need, but to instead attract business and provide domestic air carriers a cheap source of maintenance servicing. This liberalization of FAA certification criteria has resulted in over 690 foreign repair stations today. This is more than triple the number of foreign repair stations prior to the 1988 rule change. The increasing numbers of foreign repair stations, coupled with domestic airlines willingness to use them is not only causing

the loss of American jobs, but it is creating a safety crisis for air travelers worldwide. To add insult to injury, this is sanctioned and condoned by the United States government.

We at Local 20 do recognize that over the years there have been efforts by federal lawmakers to correct this problem. Most recently the FAA's Notice of Proposed Rulemaking (NPRM) is indeed a step in the right direction. In particular, the NPRM seeks to revise the system of ratings and require repair stations to adopt a quality program. While I applaud the FAA for soliciting public comments with respect to these FAA practices, the NPRM does not seek to remedy the safety and security concerns arising from laissez-fair certification practices that have existed since 1988. With respect to security, the brutal attacks of September 11th brought this issue to the forefront of the foreign maintenance center debate. Yet, the FAA continues to fail to acknowledge the safety and security dilemma of the 1988 rule change, even after September 11th.

As I pointed out earlier, the current FAA certification requirements put more emphasis on the bottom line business interests of domestic air carriers than that of passenger safety. Again, we are happy to see the NPRM and the union will respond to it by the April 16th public comment deadline. However, it is clear that the current leadership at the FAA, backed by a White House that has adopted a practice of opposing just about any kind of regulation of business, has missed a golden opportunity to address many of the safety issues that have lingered for years. In this regard, and in the absence of the FAA's refusal to proactively address these crucial safety concerns, we at IFPTE would ask that Congress, in particular your Subcommittee, take a close look at this issue during your crafting and consideration of the FAA Reauthorization bill.

First and foremost, Congress must correct the glaring loophole from the 1988 rule change that creates a double standard between domestic certifications and foreign certifications. Foreign stations are permitted to gain FAA certifications without meeting the same standards as domestic stations. And, in many cases, the foreign stations get certified without conforming to proper safety and security requirements. Since the FAA itself will continue to support this policy by issuing certifications to substandard foreign stations, it is IFPTE's recommendation that Congress require the very same security and safety standards for foreign stations that are imposed on domestic maintenance stations.

It is unfortunate, but the FAA continues to ignore Congress and squander opportunity after opportunity to put real teeth into the safety standards of foreign repair stations. For example, *The Century of Aviation Reauthorization Act* (PL 108-176) called on the FAA to create a policy that ensured for equivalent safety, oversight and quality control of domestic stations. However the FAA created NPRM ignores Congress' safety directive.

Two glaring inequities are the drug and alcohol testing program, along with inspection personnel requirements. For example, the NPRM requires all domestic stations to designate a "chief inspector," who is an FAA Part 65 certified mechanic with at least three years of experience. However, there is no such certification requirement at foreign stations. In addition, the FAA claims that most aircraft maintenance workers should be subject to drug and alcohol testing. Citing safety as the primary reason for this requirement, the FAA has aggressively pursued the authority to mandate these tests. However, there is no such interest when it comes to workers at foreign repair stations, which leads to the obvious question, 'How is it that the FAA can claim it is a safety issue

here in the U.S. but not abroad?' Both the drug and alcohol testing as well as the chief inspector issues need to be required of foreign stations as well.

To add insult to injury there has been a significant increase of air carriers' use of non-certified maintenance facilities abroad, according to a December 15, 2005 IG report entitled, *Air Carriers' Use of Non-Certified Repair Facilities*. The report goes into great detail with respect to the near absence of certifications and other forms of professional accreditation of personnel, safety, security and quality control systems. Page 6 of the report says that, "non-certified repair facilities are not covered under FAA's routine oversight program for repair stations." It goes on to point out that the FAA claims that oversight of these facilities "rests solely with the air carrier using them." However the IG Report notes that, "1,400 domestic and foreign facilities that could perform the same work (e.g., repairing flight control systems and engine parts) a certified facility performs but are not inspected like certified facilities." The IG goes on to state that, "we disagree that the FAA does not have oversight responsibility for non-certified repair facilities."

So, when you think it can't get much worse it does. When domestic air carriers find it too burdensome or expensive to use in-house facilities or the already flawed FAA certified foreign stations, they are turning to non-certified stations that the FAA acknowledges they have no role in regulating. IFPTE Local 20 advocates for a complete prohibition for all domestic air carriers from using these non-certified stations.

Lastly, I want to make mention of what those of us in the labor community have been arguing for years: National lawmakers must, once and for all, address the dire security flaws of the foreign repair stations. The Transportation Security Administration (TSA) and the FAA are long overdue in issuing a rule detailing security standards on

foreign and domestic airline maintenance facilities. Furthermore, the TSA is required to move forward with security audits of foreign stations. Problem is the rule was supposed to be open for public comment in mid-2004 and ultimately finalized no later than August of the same year. To date the FAA nor the TSA has issued this rule. The TSA security audit of foreign stations is required to be completed 18 months after the finalizing of the rule. Here again the government has been egregiously tardy in meeting their statutory obligations, all while the security at many foreign stations remains sub-par. In light of the TSA and FAA's unwillingness to adhere to the letter of the law, Congress must step in and clearly mandate that these security audits begin as soon as possible.

In closing I want to reiterate that when it comes to the safety and security of air repair stations, both in-house and foreign, there needs to be one standard across the board. The Congress should also fund the FAA at a level that it can properly provide this oversight and guidance, as well as allow for the hiring of more FAA inspectors.

Thank you again for allowing me, on behalf of ESC, IFPTE Local 20, to provide you with this testimony.

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