Annual Report
of AIR
Accomplishments

Fiscal Year 2004

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Director

Certified

PERFORMANCE FY 2004

Aircraft Certification Service

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Aircraft Certification Service
Director's FY 2004 Accomplishments Report

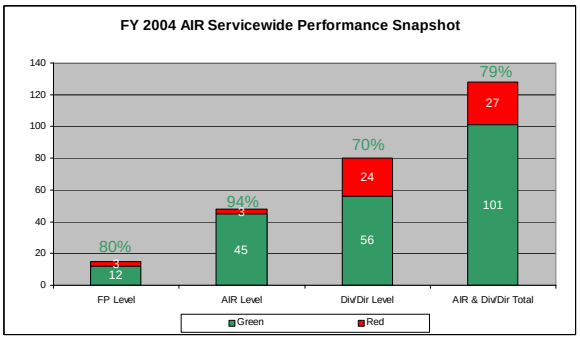
Fiscal Year (FY) 2004 was a year of important challenges and significant progress for the Federal Aviation Administration's (FAA) Aircraft Certification Service (AIR). It was a year of accomplishments and program advances across this organization for which we have reason to be proud. This Accomplishments Report highlights AIR Service and program achievements for FY 2004 in support of FAA and Office of Aviation Safety (AVS) objectives for Aviation Safety, Capacity, International Leadership, and Organizational Excellence.

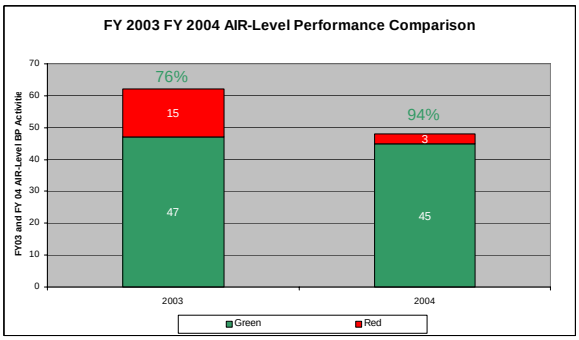
AIR's work in the areas of safety regulations and policy, type design and production certification, and continued operational safety links to the FAA's goals of improving commercial and general aviation safety and advancing international leadership, consistent with our Vision 100 reauthorization. The Service's safety accomplishments in FY 2004 have contributed to historic lows in commercial and general aviation fatality rates and the achievement of the FAA's safety performance targets. And, our Safety Management advances in FY 2004 enable us to address, with increased effectiveness, the safety challenges of the future. Noteworthy highlights included new rulemaking to reduce fuel tank ignitions, updated policy on flight guidance systems, and working with designees and designated organizations to expand the reach of AIR programs.

In coordination with the FAA's International Aviation organization, AIR supports the FAA's strategic goals to broaden our international partnerships and promote improved safety and regulatory oversight throughout the world. Annually, AIR meets with civil aviation authorities from around the world to discuss new technologies, address obstacles to the transfer of aeronautical products, and to identify processes that could enhance global safety. Key areas of focus have been the strengthening of relationships with Asia and the new European Aviation Safety Agency (EASA). For example, the Service has representatives on the U.S. negotiating team for a new bilateral agreement with the European Union (EU).

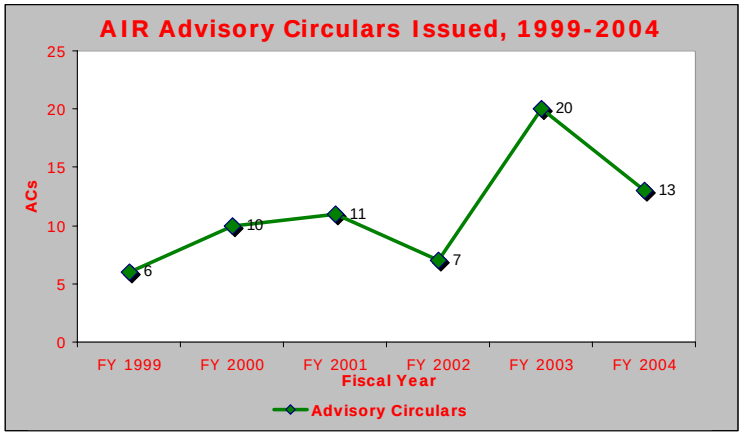
AIR Organizational Excellence initiatives aim to realize and capitalize on operational efficiencies supporting FAA organizational excellence objectives and advancing AVS management initiatives and the President's Management Agenda. AIR's Organizational Excellence extends to the Service's strategic management of human capital, e-Government, financial and procurement performance, budget and performance integration, and AVS integration.

FY 2004 saw Service-wide success in carrying out priority activities identified in the AIR Business Plan. The FY 2004 AIR Business Plan comprised 48 AIR-level activities, including 15 strategic activities linked to the FAA Flight Plan. In FY 2004, AIR successfully completed 12 of 15 strategic activities (80%), and 45 of 48 AIR-level activities (94%). The FY 2004 Business Plan success rate of 94% represents a dramatic improvement from the 76% achieved in FY 2003.





SAFETY REGULATIONS AND POLICY: Regulatory development and policy guidance provide the framework and basis for our oversight of aviation safety. Developing or amending safety regulations through the rulemaking process and issuing timely guidance are the cornerstones of our mission, contributing ultimately to achieving improvements in aviation safety. AIR regulations and policy activities include: rules, Airworthiness Directives (ADs), Advisory Circulars (ACs), Orders and agreements and accords with international organizations or bilateral partners for our responsibilities under Title 14 US Code of Federal Regulations (14 CFR) Parts 21, 25, 27, 29, 33, and 35. AIR has initiated action to improve the timeliness of aviation guidance and strengthen evaluation of our regulatory effectiveness and to better balance regulatory cost and burden. In FY 2004, AIR completed 67% of strategic targets (4 of 6) for regulations and policy. In FY 2004, approximately 12% of the Service's resources were allocated to the promulgation of aviation safety regulations and policy.



As an indicator of performance in safety regulatory and policy development, AIR tracks and monitors the service's issuance of Advisory Circulars (ACs). During FY 2004, the service issued 13 ACs.

2004 Program Highlights:

- *Regulatory Development*: In FY 2004, AIR issued the first of the Special Federal Aviation Regulations (SFAR) 88 ADs to reduce the probability of failures and malfunctions that could create fuel tank ignition sources. The rule requires large transport airplane manufacturers and modifiers to review their fuel tank designs. AIR also issued the Notice of Proposed Rulemaking (NPRM) for Auto-Flight Systems for public comment in the *Federal Register*. In addition, AIR reached final team concurrence on the NPRM for Enhanced Airworthiness Program for Airplane Systems (EAPAS), published an extension for SFAR 36, and issued the 21.183 (d) NPRM regarding standard airworthiness certification for new aircraft.

- *Advisory Circulars*: AIR and Flight Standards Service (AFS) published the jointly-developed Automatic Dependent Surveillance-Broadcast (ADS-B) AC in the *Federal Register* in FY 2004. Also in FY 2004, AIR updated the AC for flight guidance systems, addressing safety issues that were raised in five NTSB safety recommendations. The Service also issued draft ACs for comment on fatigue of small airplane structures and installation of electronic displays in small airplanes, along with a comprehensive update to the Small Airplane Powerplant AC. In all, AIR issued 13 advisory circulars in FY 2004.

- *Orders and Guidance*: AIR issued a revision to the FAA/Industry Guide to Product Certification in FY 2004. In FY 2004, AIR also published the draft Restricted Category Order in the *Federal Register*, and developed a proposed policy for Alternative Methods of Compliance (AMOCs) ADs. A Phase 1(b) Rulemaking Project Record (RPR) was developed for the engineering role in type certification. AIR issued draft policies regarding installation of engines with electronic controls in small airplanes and certification of composite secondary structures. AIR also participated in the Joint Aviation Authorities (JAA) Unmanned Aerial Vehicles (UAV) Task Force and NASA-led ACCESS 5 program, and contributed to the AVS UAV team's development of an operational approval process for UAVs.

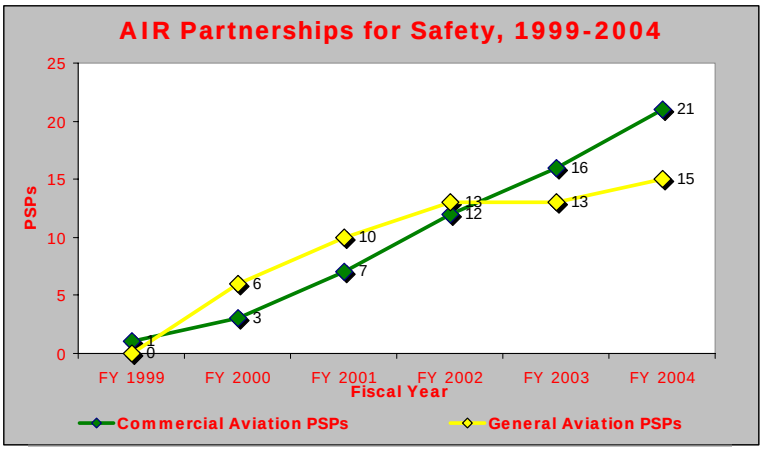
- *Regulatory Excellence*: AIR advanced risk-based functional prioritization for all product-specific parts of the Federal Aviation Regulations (FAR). This prioritization will facilitate an increased safety focus in certification, rulemaking, and continued operational safety work.

- *Intergovernmental Cooperation*: In FY 2004, AIR contributed to the establishment of the FAA/DoD Memorandum of Agreement (MOA), which provides FAA certification, technical

assistance, and continued airworthiness services to the DoD and U.S. Coast Guard. The Service also supported the Department of Homeland Security's Counter-MANPADS (Man Portable Air Defense System) Special Program Office in their Congressionally-directed prototyping effort.

- *Bilateral Agreements*: Bilateral Aviation Safety Agreements Implementation Procedures for Airworthiness (BASA IPAs) were completed with Brazil and Singapore; and agreement was reached with EASA on completion of an assessment of the EU regulatory system. FAA has now concluded 14 BASA IPAs throughout the world.

TYPE DESIGN AND PRODUCTION CERTIFICATION: Certification of aircraft and aircraft components is an AIR core mission and competency. The Service's activities in this area include the issuance of new design approvals, and production and airworthiness certificates. Design approvals include type certificates (TCs), amended type certificates (ATCs), supplemental type certificates (STCs), and amended STCs for commercial and general aircraft; Parts Manufacturer Approvals (PMAs) and Technical Standard Order Authorizations (TSOAs) for parts and articles; field approvals; and production approvals. In addition, AIR also validates that foreign aircraft, engines, propellers, and appliances meet U.S. design and performance standards. AIR's certification activities enhance safety by validating that minimum safety standards for design and production are met, contributing indirectly to increased system capacity and competitiveness. AIR looks to balance requirements for new production certifications with the continued safety of the National Airspace System (NAS). AIR completed 100% of the strategic activity targets (1 of 1) for certification in FY 2004. AIR allocated approximately 39% of Service resources to the certification mission in FY 2004.



As a performance indicator of certification, AIR tracks and monitors the Service's establishment of Partnership for Safety Plans (PSPs) with commercial and general aviation customers. Five new commercial PSPs and two new general aviation PSPs were signed in FY 2004.

2004 Program Highlights:

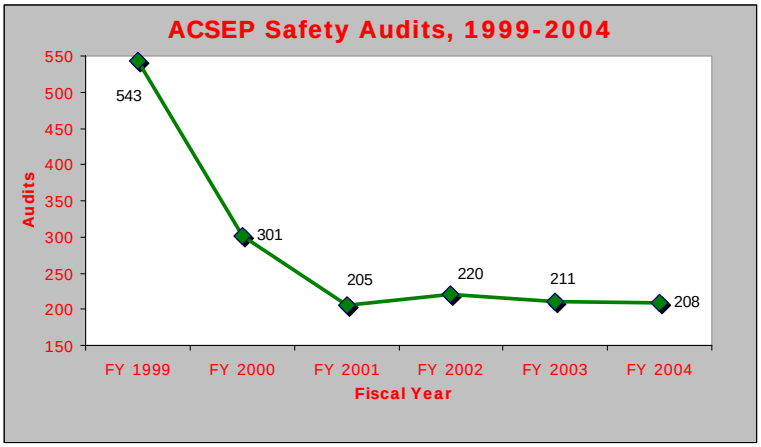
- *Certification Management*: In FY 2004, AIR developed concepts for the next generation of manufacturing inspection certificate management and for authorized release certificates, which address aviation manufacturing shifts toward a more global environment.
- *Commercial Aviation Certification*: AIR entered into 5 new PSPs with commercial applicants in FY 2004, increasing the number of PSPs from 16 to 21; and prepared for work under a delegated organizational structure with a commercial production approval holder. Some examples of type certificates issued in FY 2004 are: Embraer ERJ 170, Liberty Aircraft XL-2, Boeing 777-300ER, Polskie Zaktady Lotnicze M28, Lancair LC41-550FG, Cessna 680, as well as an ATC for Bombardier. A design approval was issued for utility floats. Also in FY 2004, STCs were issued for guidance, autopilot, vision, and illumination systems.
- *General Aviation Certification*: AIR issued an STC for ADS-B datalink avionics. Also, the service established 2 new PSPs for general aviation, increasing general aviation PSPs from 13 to 15.
- *Certification Data*: AIR deployed a major computer application that automates and consolidates many of the certificate management activities within the production certification process: Certificate Management Information System (CMIS). The application replaces

almost a dozen disparate databases housed locally throughout the organization. CMIS automates the business process and stores safety data from surveillance documents and reports, supporting real-time safety data reporting and trend analysis. CMIS enhances our efficiency to direct the certificate management and surveillance activity of over 450 inspectors while improving our ability to perform safety analysis.

- *International Airworthiness Certification*: AIR completed the validation for a 78- passenger regional jet model in just 14 months. Also, the organization successfully completed transition of the European Technical Standard Order (TSO) design approval activity from Brussels to the Boston Aircraft Certification Office.

CONTINUED OPERATIONAL SAFETY: Maintaining the safe operation of aircraft in the NAS is the Service's priority mission. Fittingly, it is the focus of the greatest share of AIR resources. Our oversight program includes monitoring and analysis of safety data, issuance of ADs, audits, safety compliance activities, designee management, research and development, and technical training. Additionally, we actively cooperate with our external safety partners including the National Transportation Safety Board (NTSB), the Department of Transportation Office of the Inspector General (DOTIG), and the Government Accountability Office (GAO). During FY 2004, AIR proactively advanced the concept of a data-driven, risk-based, systems approach to safety. Internationally, AIR engages with partner organizations to harmonize safety standards, procedures, and policies; and provides safety training and technical assistance for foreign partners. The service completed 86% of continuous operational safety strategic targets (6 of 7) in FY 2004. Approximately 43% of service resources were allocated to the safety oversight mission in FY 2004.

As an indicator of AIR's COS performance, the Service tracks Aircraft Certification Systems Evaluation Program (ACSEP) safety audits conducted. During FY 2004, AIR conducted 208 ACSEP safety audits. The reduction in the number of ACSEP evaluations from FY 1999-2004 reflects improved resource targeting, with the transitioning of Category 3 part manufacturers from ACSEP audits to Principal Inspector (PI) audits.



2004 Program Highlights:

- *Safety Management*: AIR developed a draft order for internal coordination for the Service's broad, cross-cutting Safety Management initiative outlining service-wide procedures and guidance. Consistent with Safety Management, AIR advanced risk management capabilities and FAR-part prioritization in FY 2004 to target resources for improved reach and effectiveness. In FY 2004, AIR also developed the Change Leadership framework and provided training to the Service's leadership and management.

- *Airworthiness Directives*: As part of the Service's forward-looking COS program, AIR issued two ADs on structural issues using a new simplified process. AIR also advanced its risk-assessment prioritization of AD issuance in FY 2004. In all, a total of 492 ADs were issued during the fiscal year.

- *Safety Oversight*: AIR completed 208 ACSEP safety audits of production approval holders (PAHs) to evaluate compliance with aviation safety regulations. ACSEPs identified 399 non-compliances at PAH facilities, none identified an immediate safety concern. In addition, there were 33 non-compliances recorded at eleven delegated facilities, and one safety-related non-

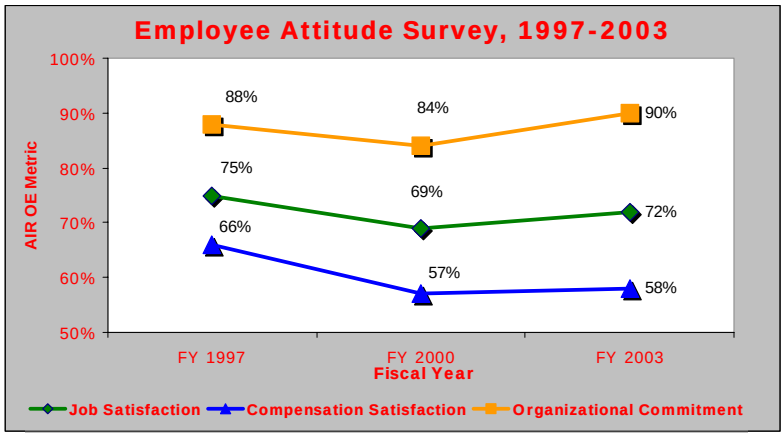
compliance at a Designated Alteration Station in FY 2004. AIR also conducted 255 Supplier Control Audits (SCAs) and 3,950 PI element audits in FY 2004.

- *Designee Management*: AIR issued Orders in FY 2004 for delegation planning. The service also drafted the Organizational Designation Authorization (ODA) NPRM and completed conversion of existing delegation holders to DDS (Delegation Option Authorization/DAS/SFAR 36) requirements in FY 2004.
- *Training*: AIR revised and prototyped a Job Function Course for aviation safety inspectors. Additionally, a training course entitled "Applying Lessons Learned from Accidents" was finalized and delivered. This computer-based course provides our engineers and inspectors with information on accident history, identifying accident precursors, application of lessons learned, and the origin of related regulations.
- *External Safety Partners*: AIR continues to address recommendations from our safety partners. At the beginning of 2004, AIR had 137 open NTSB safety recommendations. During 2004, the Service closed 17 recommendations, though 29 new recommendations were assigned to AIR. AIR ended 2004 with 149 open recommendations, an increase of 12 recommendations over the previous year. AIR also closed the OIG audit of Certification & Surveillance of Aircraft and Aircraft Parts during FY 2004.
- *Safety Data*: In FY 2004, AIR led the Commercial Aviation Safety Team's (CAST) initial efforts to develop joint CAST/Flight Operational Quality Assurance (FOQA)/Aviation Safety Action Plan (ASAP) Aviation Rulemaking Committee (ARC) working procedures to better enable safety improvement through precursor identification. Also, recommendations for improving the management of safety data were provided to the Certification Process Study (CPS) Oversight Board.
- *Research and Development*: AIR conducted a NASA/industry/FAA workshop on bonded joint composite structure.
- *International Safety Enhancements:* AIR succeeded in leading the completion of a structural reorganization of the International Civil Aviation Organization (ICAO) Airworthiness Manual and completed development, with JAA JSSI, of Action Plans for all CAST Safety Enhancements. The service also assisted 9 international safety organizations in adopting CAST solutions appropriate to their countries and hosted the annual FAA/Europe International Aviation Safety Conference. In FY 2004, AIR revised FAA/JAA Type Validation and Post Validation Principles with EASA and co-developed and monitored an action plan for improvements to the Japanese aircraft certification system. In addition, AVS and AIR executives visited China for discussions with General Administration of Civil Aviation of China (CAAC) counterparts to further technical cooperation, and AIR's Director visited the company designing and building a Chinese regional jet. AVS and AIR executives also participated in the sixth FAA/Asia Pacific Bilateral Partners Dialogue Meeting.
- *Technical Assistance*: The Service provided 4 Flight Safety Foundation CFIT Approach and Landing Action Group workshops for international operators regulators and ATC providers and began an extensive technical training program for China in 14 CFR Part 25 requirements.

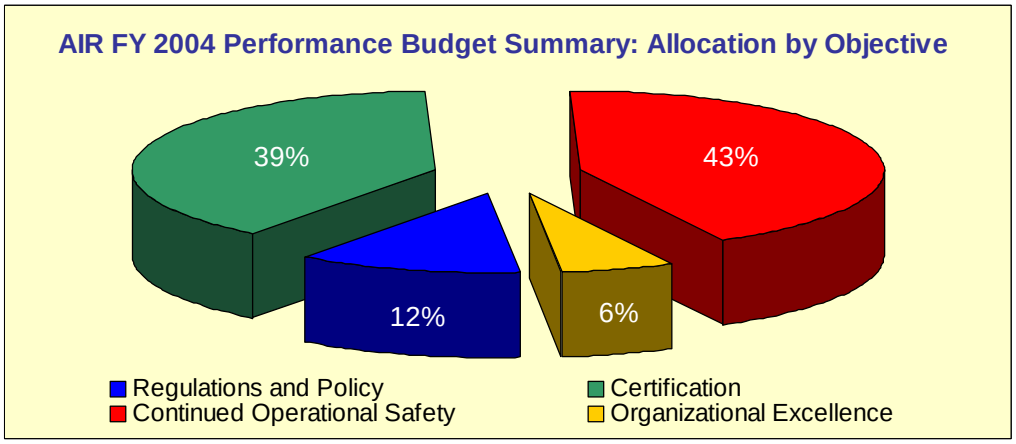
ORGANIZATIONAL EXCELLENCE: AIR's organizational excellence focuses on our people, information, financial resources, continuous improvement, and our organization's support of FAA/AVS organizational excellence and the President's Management Agenda. Organizational Excellence also extends to our efforts in support of AVS integration, looking to realize and capitalize on efficiencies by standardizing and consolidating processes. AIR completed 100% of Organizational Excellence strategic activity targets (1 of 1) in FY 2004. Approximately 6% of the Service's resources were allocated to initiatives in support of AIR, AVS, FAA organizational excellence, and the President's Management Agenda in FY 2004.

As an indicator of our support performance in organizational excellence, AIR tracks employee response in the tri-annual Employee Attitude Survey (EAS) as a gauge of workforce satisfaction and organizational commitment. AIR responses to the EAS indicated improvements in overall job satisfaction, compensation satisfaction, and organizational commitment in FY 2003 (the most recent year for which data was available) survey over FY 2000.

2004 Support Highlights:



- *Strategic Management of Human Capital*: In FY 2004, AIR completed and issued the Service's first Human Capital Plan. AIR also issued Orders piloting the Employee Referral Bonus Program for FAA and implementing the Leadership Enhancement and Development (LEAD) and Structured AIR Supervisory Selection (STAIRS) programs throughout AIR. The Service has documented 78% of employees' performance as linked to agency objectives, strengthening individual and organizational accountability for performance. This year, AIR also developed training materials and work rules with Professional Airways Systems Specialists (PASS) and the National Air Traffic Controllers Association (NATCA). AIR's support of and participation in special emphasis programs helped maintain our diverse workforce. In FY 2004, AIR utilized approximately 4,600 designees to complement federal oversight and extend the service's certification and safety reach.
- *E-Government:* In FY 2004, AIR, for the first time, submitted the Aviation Safety Knowledge Management Environment (ASKME) Office of Management and Budget (OMB) Exhibit 300 for inclusion in the FAA's information technology (IT) investment portfolio as a major IT capital investment program. The submission was recognized by the agency as one of the top submissions in FY 2004 and successfully met all OMB investment and performance criteria.
- *Financial and Procurement Performance:* AIR succeeded in obligating 99.75% of the allowance level in FY 2004.
- *Budget and Performance Integration:* In FY 2004, AIR prepared and submitted planning and performance information attributing 100% of the Service's budget request for the formulation of the FY 2005 AVS business plan. As a result, we extended the plan to include new core business activities and measures. AIR participated in and contributed to the successful OMB Program Assessment Rating Tool (PART) evaluation of aviation regulation and certification. And, in the effort to better tie our resources to performance, the Service extended Labor Distribution Reporting (LDR) to include the bargaining unit technical workforce in FY 2004.
- *AVS Integration:* AIR completed International Organization for Standardization (ISO) registration of the Rotorcraft Directorate Safety Management Office and self-certification of the Transport Airplane Directorate Standards Staff.



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