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

**ON
REVIEW OF FAA’S CERTIFICATION PROCESS: ENSURING AN
EFFICIENT, EFFECTIVE, AND SAFE PROCESS**

OCTOBER 30, 2013

The Professional Aviation Safety Specialists, AFL-CIO (PASS) represents over 3,000 aviation safety inspectors in the Flight Standards and Manufacturing Inspection District Office (MIDO) bargaining units at the Federal Aviation Administration (FAA). These employees are responsible for certification, education, oversight, surveillance and enforcement of the entire aviation system. Among other things, PASS-represented inspectors perform the following tasks: provide continued operational safety support; provide operational suitability determinations; issue airworthiness certificates and production approvals; provide certificate management; conduct enforcement investigations; oversee designees; investigate suspected unapproved parts; and provide information through the Freedom of Information Act (FOIA).

PASS appreciates the opportunity to present our views regarding the FAA's certification process and ways to ensure its safety and efficiency. In specific, we look forward to discussing the elements of the certification process and recommendations put forth by Aviation Rulemaking Committees (ARCs), as required by Sections 312 and 313 of the FAA Modernization and Reform Act of 2012 (P.L.112-95).

Certification: Definition and Overview

The FAA's certification process is a layered system intended to ensure aircraft and equipment meet FAA's airworthiness requirements, which are codified in the Federal Aviation Regulations (FARs). The FAA's Aircraft Certification Service (AIR) division is responsible for issuing approvals and monitoring certificates for aircraft in order to ensure safety from initial design to retirement. The various AIR employees are PASS-represented manufacturing inspectors and Aircraft Evaluation Group (AEG) inspectors, National Air Traffic Controllers Association (NATCA)-represented engineers and flight test pilots, and support staff.

In FY 2011, AIR issued approximately 3,159 design approvals, 76 production approvals and 647 airworthiness certificates.¹ The FAA issues approvals or certificates for new operators, aircraft, and aircraft parts and equipment based on evaluation of aviation industry submissions, FARs and FAA guidance. In addition, the agency grants approval for changes to existing air operations and equipment. FAA approval indicates that the aircraft, equipment and air operations meet minimum FAA safety standards and are safe for use or flight in the National Airspace System (NAS).

Certification requirements are included in part 21 of Title 14 of the Code of Federal Regulations (14 CFR), Certification Procedures for Products and Parts. The steps in the design-approval process include the applicant's conceptual design, the application for design approval, definition of the design standards, test plans and analysis to demonstrate the design meets those standards, generation and substantiation of compliance data, determination of compliance, and issuance of the type certificate. The issuance of the type certificate approves the aircraft design; a similar process is in place to approve the production of the parts for the aircraft. The certification process begins with an industry application for a type certificate and the establishment of a certification basis. The applicant must illustrate compliance plans and prove adherence to these

¹ Consistency of Regulatory Interpretation Aviation Rulemaking Committee, *Recommendations on Improving the Consistency of Regulatory Interpretation* (Washington, D.C.: November 28, 2012), p. 11.

engineering test plans. Following issuance of the type certificate, the applicant must meet the production certificate regulations to obtain a production certificate or approval in order to produce the aircraft and parts. When the aircraft enters service, the certificate holder is responsible for monitoring the aircraft fleet for continued airworthiness. As safety issues are uncovered, these must be reported to the FAA and worked with the FAA to correct them.

While FAA inspectors and engineers are involved in the certification process, individual and organizational designees are often granted authority to verify compliance to specific portions of the regulations in the certification process and make findings of compliance in support of the type and production certificates. For delegated projects, FAA involvement is reduced based on the ability of the designees involved and their technical capabilities. It is relevant to note that according to the FAA, the transition of delegation oversight does not change the certification process.²

Section 312: Aircraft Certification Process Review and Reform

Per requirements in Section 312 of the FAA reauthorization legislation, the Aircraft Certification Process Review and Reform (ACPRR) ARC put forth six recommendations focused on streamlining the certification process, reengineering the product certification process, and improving efficiency and effectiveness within AIR.³ While PASS agrees with many aspects of the recommendations included in the ARC report, we have some specific concerns.

Implementation Plan for Improvement of Certification Process

The ARC report recommends that the FAA develop a comprehensive implementation plan for certification process improvement initiatives and strongly supports use of the FAA and Industry Guide to Product Certification (CPI Guide). Specifically, the ARC report recommends that “an update to type certification and project management policy and guidance to incorporate CPI Guide principles and best practices as a requirement would improve the overall effectiveness and efficiency of certification processes.”⁴

The CPI Guide includes a written agreement of adherence to an approval timeline. However, in many instances, companies may not adhere to the timeline or are delayed. While companies are permitted flexibility with their schedules, this does not translate once the FAA receives the application. In other words, if inspectors and engineers are supposed to be given a month to investigate and approve issuance of a certificate and the applicant is late in submitting the completed application, there is no additional time granted to the FAA for review. As such, MIDO inspectors and engineers are put in a position where they have limited time to perform their tasks. The certificate approval process is highly scrutinized and employees are forced to adhere to the timelines, even if that means other work suffers. In no way should a timetable or a rush to complete a task put safety at risk. PASS recommends that guidance in the CPI Guide be reexamined to compensate for the timetable issues.

² Federal Aviation Administration, “FAA Presentation – NTSB Hearing – Panel 4” (April 24, 2013), slide 4.

³ Aircraft Certification Process Review and Reform Aviation Rulemaking Committee, *Recommendations on the Assessment of the Certification and Approval Process* (Washington, D.C.: May 22, 2012), pp. xiv–xvi.

⁴ *Id.*, p. 16.

Another issue related to timelines is the FAA's reliance on a sequencing program designed to prioritize projects in a fair and standardized manner based on safety and company contribution. According to the program, all new applicants for certification and validation that are expected to require more than 40 hours of FAA involvement are entered into the sequencing program, which requires approximately 90 days to determine whether they can be started. It should be noted that the 40-hour threshold does not account for the time it takes MIDO inspectors to support the process, including reviewing the conformity plan, overseeing the work of designees and reviewing the special airworthiness limitations.

Reports from the field indicate that the sequencing program itself is actually the cause of the delays and not the workforce's use of it. Not all offices use the system and it is implemented differently from location to location, and there are inconsistencies with applicants getting acceptable data to the FAA. The FAA is currently working on a process to replace sequencing called project prioritization. While project prioritization has some positive concepts, it adds extra layers of paperwork and assigns time metrics, which has the potential to result in even greater inefficiencies and delays. It should be noted that PASS is not currently a participant in the development of this new program.

The ARC report indicates that the certification process is in need of streamlining. PASS concurs that improvements can be made, but believes that additional guidance or timelines is not the most effective way to ensure a smoother process. In fact, MIDO inspectors state that the layers of paperwork required in the CPI Guide and other tools and guidance merely add work that is not related to providing technical approval and actually contribute to the delay in the process. One inspector claims that the FAA has lost its technical focus of getting the job done and suggests "scrubbing" the process to remove the unnecessary steps and requirements. PASS recommends conducting a national review of agency regulations, policies and procedures in order to eliminate those that are inefficient. PASS also supports the development of a database to monitor and track certification process improvements. This will ensure that all levels of the organization are aware of the improvements to the process and have the ability to educate themselves as new changes are introduced.

PASS believes that union involvement, specifically by a designated representative of the union representing MIDO and AEG inspectors, is critical to ensuring the success of any implementation plan. It has been proven time and time again that stakeholder involvement is critical to successful implementation of new plans or concepts. This will prove greatly beneficial to addressing inefficiencies and assisting in proper implementation.

Designee Program

The ARC report recommends that the FAA enhance its use of delegation programs in order to improve efficiency of the certification process.⁵ PASS has serious concerns with a possible expansion of the designee program. Quite simply, the FAA cannot keep delegating out the work without an adequate number of inspectors and engineers to oversee the designees.

⁵ Aircraft Certification Process Review and Reform Aviation Rulemaking Committee, *Recommendations on the Assessment of the Certification and Approval Process* (Washington, D.C.: May 22, 2012), p. xv.

In order to compensate for limited staffing and increased workload, the FAA is relying more on its designee program in which a person or organization performs certification tasks on behalf of the FAA. The FAA is responsible for overseeing the work of designees, who, according to the FAA, “act as surrogates for the FAA in examining aircraft designs production quality, and airworthiness” even though they are “paid by the manufacturers.”⁶ There are several types of designees, including manufacturing and maintenance designated airworthiness representatives (DARs), who perform examination, inspections and testing services related to the issuance of certificates; designated manufacturing inspection representatives (DMIRs), who issue certificates for aircraft and airworthiness approvals, among other things; and organizational delegations, which are companies who are allowed to serve as designees through the organization designation authorization (ODA) program.

There are 139 MIDO inspectors who, in addition to their other work, are responsible for overseeing 1,106 DMIRs, 312 DARs and 76 ODAs. With designees being permitted to perform more and more work, the balance of FAA oversight is insufficient. According to the Government Accountability Office (GAO), designees perform more than 90 percent of FAA’s certification activities despite serious “concerns that designee oversight is lacking,” especially in the use of ODAs.⁷ As stated by the Department of Transportation Inspector General (IG), “Ineffective oversight of organizations with designated authority weakens FAA’s role in aircraft certification.”⁸ To this point, MIDO inspectors inform PASS that with such a high number of designees to oversee, much of the inspector’s day is taken up with reviewing paperwork or answering designee questions rather than witnessing and performing work on projects. Work that once was performed by FAA inspectors but is now designated includes but is not limited to: performing airworthiness determination of aircraft; performing conformity inspection of a new project; witnessing tests on a new project; performing a type inspection report or supplemental type inspection report; and overseeing amateur, light-sport and experimental aircraft.

Even more concerning, the growth of the ODA program is making oversight increasingly unmanageable. With an individual designee, if an inspector notes a problem, the designee’s authority can be removed. However, under the ODA program, when the designee is an entire corporation, pinpointing the problem is sometimes impossible since the FAA is only examining a small portion of the activity. In fact, inspectors are not allowed to speak to the ODA unit members directly and are forced to go through a management hierarchy in order to address issues. When the ODA program was first introduced, it was intended to allow companies with the highest expertise and capabilities to serve as an extension of the FAA. Unfortunately, with so many companies permitted to hold the authorization, the program has grown so that oversight is nearly impossible.

⁶ Federal Aviation Administration, “Delegation and Designee Background,” page last modified June 21, 2006, available at http://www.faa.gov/about/history/deldes_background.

⁷ Government Accountability Office, *Aviation Safety: FAA Efforts Have Improved Safety, but Challenges Remain in Key Areas*, GAO-13-442T (Washington, D.C.: April 16, 2013), p. 3.

⁸ Department of Transportation Inspector General, *FAA’s Progress and Challenges in Advancing Safety Oversight Initiatives*, CC-2013-013 (Washington, D.C.: April 16, 2013), p. 10.

When a private company is permitted to establish timelines and processes without sufficient government oversight, there will undoubtedly be serious issues. This became painfully clear following the April 2011 crash of a Gulfstream GVI (G650) during a test flight in New Mexico. The aircraft crashed during takeoff and two pilots and two flight test engineers were killed. In investigating the accident, the National Transportation Safety Board (NTSB) indicated that limited FAA involvement in the process contributed to the incident, which was related to uncommand roll events. In fact, during the post-accident investigation, Gulfstream's chief test pilot stated that FAA's participation during previous certification test flights "might have accounted for the difference in the level of attention."⁹ Furthermore, Gulfstream was focused on keeping to a delivery schedule and, with little oversight, moved forward aggressively. As stated in the NTSB report, and emphasizing points made above regarding compressed timelines, "Intense schedule pressure can lead to decision biases, shortcuts, and errors that negatively affect safety."¹⁰ The report concluded that deficiencies in technical planning and oversight contributed to the accident.¹¹

In addition, during the recent partial government shutdown, designees were allowed to work without direct FAA supervision. In one case, prior to the shutdown, an inspector had removed authority from a designee to issue airworthiness certificates since it had been over a year since that individual's last FAA inspection; inspectors are responsible for physically reviewing each designee at least one day a year. During the shutdown, that designee bypassed the inspector, who was not at work, went directly to FAA management and his authority was reinstated despite the fact that it had been over a year since he had been reviewed.

The level of work and the oversight needed to ensure proper surveillance of designees and ODAs must be addressed. The FAA cannot continue to delegate if it does not have the people to oversee those doing the work. In addition, it may be beneficial to have the inspector specialize in specific areas in order to focus efforts, such as certain inspectors are responsible only for oversight of ODAs.

Regarding specific items in the ARC recommendation regarding expanding delegation, PASS understands that there is a limited amount of delegation for noise and emission testing; however, this is a regulatory matter and involves sectors of the FAA outside of Aircraft Certification. We do not agree that Instructions for Continued Airworthiness (ICA) should be categorized as a low-risk activity, but it can be delegated in a limited and controlled manner. The ICA provides documentation of recommended methods, inspections, processes, and procedures to keep products airworthy. Requirements for ICA, which were published and made effective in 14 CFR in 1980, provide a universal and standardized model for aircraft, aircraft engine, and propeller maintenance data, replacing various maintenance manual data standards previously in effect. Maintenance rules are radically different among airworthiness authorities, including those located outside this country. Delegated ICA review authority by foreign authorities has resulted in ICAs that do not meet basic regulatory requirements. PASS believes that FAA ICA rejection

⁹ National Transportation Safety Board, *Crash During Experimental Test Flight, Gulfstream Aerospace Corporation GVI (G650), N652GD, Roswell, New Mexico, April 2, 2011*, Aircraft Accident Report NTSB/AAR-12/02 PB2012-910402 (Washington, D.C.: October 10, 2012), p. 28.

¹⁰ *Id.*, p. 41.

¹¹ *Id.*, p. 53.

data has not been considered by the ARC in making this recommendation and strongly disagrees with the proposal for delegation expansion to ICA acceptance.

However, PASS does support the recommendation of implementing an ODA action plan, but emphasizes that it must include PASS-represented MIDO inspectors. Furthermore, PASS is in full support of additional training and resources to ensure robust oversight, and believes additional staffing is critical to fulfilling this recommendation.

Systems Approach for Safety

The ARC recommends that the FAA undertake a review of 14 CFR part 21 certification procedures to reflect a system safety approach to product certification process and oversight of design organizations.¹² PASS agrees with portions of this recommendation, specifically qualification and organizational requirements and increased training, and request to be involved in any changes proposed to the regulation. However, PASS has strong concerns regarding the Certificate Design Organization (CDO) program.

Congress authorized the FAA to develop and oversee a system for the certification of design organizations in order to allow design organizations with proven capability to perform work on behalf of the FAA with little or no oversight. In essence, these organizations would be acting as “mini FAAs” without government involvement or supervision. While PASS acknowledges that some organizations would be capable of performing these duties, we disagree with full implementation of the CDO program and believe it introduces a new level of risk into the process. As stated above, the ODA program started with a focus on only allowing companies with the skills and resources to act as organizational designees. But now it is relatively easy for an organization to act as an ODA. If the FAA wants to pursue the CDO program, PASS emphasizes that it must be done on a trial basis and include input from PASS-represented MIDO inspectors.

Other Process Reforms and Efficiencies

PASS supports parts of the ARC recommendation regarding other process reforms and efficiencies,¹³ including increased design approval holder responsibility and fast tracking the rulemaking process to update airworthiness standards in cases where the practice has been in place for a period of time and demonstrated no negative consequence to aviation safety. Regarding strengthening the effectiveness of validation programs under bilateral agreements, PASS supports this with reservation. Any attempt to strengthen validation programs over bilateral agreements will require additional international-related resources. The FAA does not currently have the staffing to support the expansion of international agreements. Additional MIDO inspector staffing would support the ongoing cooperation with international work. Likewise, additional resources would be necessary to leverage bilateral agreements in order to eliminate duplication of efforts in issuing mandatory continuing airworthiness information (MCAI).

¹² Aircraft Certification Process Review and Reform Aviation Rulemaking Committee, *Recommendations on the Assessment of the Certification and Approval Process* (Washington, D.C.: May 22, 2012), p. xv.

¹³ *Id.*, p. xvi.

Based on recent experiences related to certification of light-sport aircraft, PASS is concerned regarding the recommendation to implement Part 23 ARC recommendations related to using consensus standards in general aviation aircraft certification. A report issued in May 2010 by the FAA's Production and Airworthiness division (AIR-200) assessed light-sport aircraft manufacturers in order to review current manufacturing industry systems and processes. The report concluded that the majority of light-sport aircraft facilities surveyed did not comply with FAA-accepted consensus standards and had inadequate knowledge of FAA regulatory requirements and standards. The report emphasized that "relying solely on manufacturer's statement of compliance, for the issuance of airworthiness certificates, should be reconsidered."¹⁴ A pilot program to implement changes to general aviation certification regulations has potential, but PASS recommends that it be a limited trial and include PASS-represented MIDO inspectors.

Section 313: Consistency of Regulatory Interpretation

Per requirements in Section 313 of the FAA reauthorization legislation, the Consistency of Regulatory Interpretation (CRI) ARC issued six recommendations intending to improve the consistency of regulatory application and improve communications between FAA and industry stakeholders.¹⁵

The ARC report focuses primarily on inconsistencies in the certification process. However, in order to ensure a detailed and specific inspection prior to certification, by its very nature, there will be differences in the application. Different products require different tests; the ever-increasing manufacturing locations require different inspections. The application of a regulation will depend on the aircraft, part or piece of equipment that is being certified. PASS recognizes that there are still some areas where there is inconsistent interpretation of regulations. However, the agency and its employees have been working very hard over the last decade or more to reduce those inconsistencies and make the application of certification processes as uniform, as appropriate, across the country.

The CRI ARC prioritized six recommendations to address inconsistent interpretation of regulations, including the importance of developing a single master electronic database resource, providing a single source of information for all AVS personnel and members of the industry. PASS is in support of plans to address inconsistencies but maintains that application of the regulation depends on the specific product to be certified. PASS also requests to be involved in any committee or workgroup related to implementation of recommendations contained in the ARC.

Staffing

In PASS's opinion, the most effective way to improve the certification process is to address the issue of insufficient FAA inspector and engineer staffing. In discussing the sequencing program,

¹⁴ Federal Aviation Administration, Production and Airworthiness Division, AIR-200, *Light-Sport Aircraft Manufacturers Assessment (LSAMA)* (May 17, 2010), p. v.

¹⁵ Consistency of Regulatory Interpretation Aviation Rulemaking Committee, *Recommendations on Improving the Consistency of Regulatory Interpretation* (Washington, D.C.: November 28, 2012), pp. v-vi.

the ACPRR ARC emphasizes the importance of adequate inspector and engineer staffing and management of workload. “From a strategic perspective, the FAA must proactively manage the effectiveness and efficiency of the certification processes in combination with necessary staffing management to ensure it can provide the safety certification necessary to support the economic growth of the U.S. industry and the development of aviation products and technologies,” stated the ARC.¹⁶ While FAA certification activity has remained steady for the past decade, the ARC found that “the type certification and design approval workload is expected to grow because of an ongoing trend in the increased introduction of new aviation products; technologies and materials; new rulemaking and fleet-wide safety initiatives; international type validations; SMS [safety management system]; and the migration of technologies from large transport airplanes to other category aircraft.”¹⁷ As such, PASS believes steps must be taken now to ensure a comprehensive certification process involving an adequate number of trained FAA inspectors and engineers.

For years, PASS has emphasized the importance of adequate inspector staffing. The lack of adequate certification inspectors and engineers has been a complaint of the aviation industry for nearly a decade.¹⁸ There are currently 139 MIDO inspectors represented by PASS and approximately 450 field-level engineers and flight test pilots represented by NATCA. In addition, in Flight Standards, PASS represents 2,900 field-level safety inspectors, including 70 AEG inspectors. Regarding the Flight Standards inspector staffing, in 2009, the FAA introduced a new staffing model but has yet to fully implement it. As of January of this year, the FAA has reported the results of the staffing model six times with six different interpretations of staffing shortages ranging from a nationwide staffing shortage of 389 to 935.¹⁹

Unbelievably, the MIDO staffing level has not changed considerably over the past decade despite a steadily increasing level of work and responsibility. In PASS’s opinion, a full workload for a MIDO inspector would include on average oversight of 10 companies and 10 designees. This is far from the practice in the field. Inspectors interviewed by PASS report having oversight responsibility for more than twice this figure. In many instances, this is resulting in less oversight and an over reliance on a risk-based system. For instance, whereas an inspector used to spend at least once a year with a company he or she was responsible for overseeing in order to conduct a complete inspection, with fewer inspectors and more work, some companies only get inspected in person every three years. In the past, since inspectors were traveling to the companies on a regular basis, they would develop a “good feel” for the company and become familiar with what was happening at the company (i.e., whether the facility was expanded, any disagreements with labor, etc.). That relationship does not exist anymore due to the limited ability to physically inspect the companies.

To highlight the importance of regular visits, in 2011, the FAA changed its regulations to require companies to submit new manuals with a list of all accepted suppliers. Despite the rule change

¹⁶ Aircraft Certification Process Review and Reform Aviation Rulemaking Committee, *Recommendations on the Assessment of the Certification and Approval Process* (Washington, D.C.: May 22, 2012), p. 18.

¹⁷ *Id.*, p. vii.

¹⁸ Paul Lowe, “OEMs: FAA needs more certification engineers,” AINonline, September 18, 2006.

¹⁹ Department of Transportation Inspector General, *FAA Lacks a Reliable Model for Determining the Number of Flight Standards Inspectors It Needs*, AV-2013-099 (Washington, D.C.: June 20, 2013, 2013), pp. 5–6.

occurring in 2011, an inspector responsible for oversight of the company reported he was not able to visit the facility until last week. He discovered that the list of suppliers had not been updated since 2009 and the company was using parts from a supplier not on the list. Furthermore, examining this list of suppliers was only one out of approximately 60 items the inspector is responsible for overseeing during a single visit. And, due to sequestration, the hiring freeze is preventing the hiring of additional inspectors and engineers in locations where staffing is inadequate. While staffing is dropping in many locations due to retirement or other factors, the work is increasing and inspectors actually have more oversight responsibility than they did when they were staffed at the higher level. Without a doubt, in order to ensure a safe and efficient certification process, there must be an adequate number of FAA inspectors in place to oversee these important functions.

Conclusion

The FAA's certification program continues to face significant challenges. Most recently, the government shutdown and the impacts of sequestration are taking its toll on the process critical to aviation safety and efficiency. For 16 days, oversight of important certification work was put on hold; in other words, the economic impact of this shutdown resulted in an approximately 8 percent delay in the yearly aircraft and design approvals. During the shutdown, no new safety design approvals were addressed, which impacted many companies relying on the FAA; quality system audits and supplier control audits were delayed; investigations were halted; safety data was not evaluated; this list goes on. When a limited number of inspectors were called back during the shutdown, they were directed to focus only on "continued operational safety issues" and stop all FAA certification work on new aviation products. Aircraft manufacturers depend on FAA inspectors and engineers being on the job to review and certify new equipment on a timely basis. Inadequate funding or a lapse in government operations has the potential to seriously affect the FAA's ability to continue to issue its thousands of design approvals and type certificates on an annual basis, along with the ability to conduct safety-required surveillance and oversight necessary in such a technologically complex system.

PASS looks forward to continuing to work with this committee and the FAA to make improvements to the certification process in order to ensure a thorough and safe system that benefits the aviation industry now and in the future.