
# PART I:
# What FAA Delegation Does — How and Why?

Mike Borfitz, JDA Journal

News reports about the Ethiopian Airlines crash, the Boeing 737 MAX, the FAA, and Boeing have offered a variety of "expert" opinions on the certification process. In particular, these talking head have thrown the terms "designated airworthiness representative' (DAR) and "designated engineering representative" (DER) with little care and precision.

**BASED ON THEIR** alleged insights into these complex safety functions, used by every nation which certificates aircraft, they cast aspersions on the integrity of the FAA's processes which validated the airworthiness of this aircraft.

Many individuals who actually hold DARs and/or DERs have been offended by the criticisms offered by these media stars who have little or no direct experience with these important resources which the FAA and other civil aviation authorities use, mostly because the governmental organizations do not have individuals knowledgeable enough to judge the airworthiness of the system, part, material, hardware, software, etc.

## FAA DELEGATION: Why We Have It and How It Works

It's not widely known that the FAA delegation system is approaching its 80th birthday, and the form of delegation Boeing used to certificate the 737 Max harkens back to 1956 when the first Delegation Option Authorization (DOA) was issued by the FAA. Despite its unfortunate acronym, the basic DOA concept has successfully evolved over time to become the Organization Delegation Authorization (ODA) we have today.

### From the FAA Website:

"ODA holders are typically authorized to conduct the types of FAA functions which they would normally seek from the FAA. For example, aircraft manufacturers may be authorized to approve design changes in their products and repair stations may be authorized to approve repair and alteration data."

"Regular FAA oversight of an ODA is accomplished by a team of FAA engineers and inspectors to ensure the ODA holder functions properly and that any approvals or certificates issued meet FAA safety standards."

When examining delegation as a matter of practicality, the FAA Aircraft Certification organization is responsible for all aircraft design and production approvals in the US and around the world. FAA's Aircraft Certification Service (AIR) discipline has about 1,100 employees, and about 400 of the group are dedicated to administration and management.

So, roughly 700 individuals in AIR are responsible for *all* design approvals, production, and continued airworthiness of everything that flies and, of that group, maybe 400 are engineers. Well under 100 of those engineers are

assigned directly to Boeing.

## From the Boeing Website:

According to the Boeing website, it has over 45,000 engineers spread throughout the entire company. With such a deep roster of talent, the aerospace company has incredibly deep and specific expertise for new designs and management of the safety and airworthiness of the nearly 14,000 Boeing airplanes flying today.

Also, there is Congressional recognition that the FAA cannot be reasonably expected to have detailed oversight of an extremely complex airplane such as the Boeing 737 Max.

In addition, Boeing and all other manufacturers of airplanes, helicopters, engines, propellers, balloons, and even windshields and wheels carry with their products the ultimate accountability and liability of their products, right down to every nut, bolt, wire, and rivet.

Obviously, all Civil Aviation Authorities (CAA) have limited internal competence compared to the manufacturers of airframes and powerplants subject to their jurisdiction. Governments cannot afford to pay the salaries of numbers of PhDs needed to assess the adequacy of the engineering designs included in a proposed aircraft. To deal with that imbalance, all CAAs qualify and designate these external resources.

## Nearly 70 Years Ago, Congress Began Appointing Designees

As long ago as 1950, Congress specifically authorized the appointment of designees. One reason given for this clarification was "FAA was clearly in need of private sector expertise to keep pace with the growing aviation industry."

FAA delegation is a system of direct oversight which, over decades of successful safe aircraft certifications have proved that this certification regime, based on individual and organizational trust, is a regime with high integrity and even higher safety record.

To paraphrase a relevant FAA directive, a designee must have the ability to maintain the highest degree of objectivity, adequate time to perform assigned duties, and adequately represent the FAA.

Also, no one *may force* a designee to approve technical data that (s)he hasn't had enough time to review or doesn't find to comply with the applicable regulations. Also, a designee must report any coercion by an applicant to the FAA. When a designee complains of undue pressure from an employer, the FAA takes it very seriously and will investigate and take appropriate action when needed.

## FAA Authorizes Delegation Project by Project

Further, the FAA does not simply delegate and leave the certificate holder to its own devices. FAA authorizes delegation project by project, and "retains" findings of compliance in areas that are critical, novel, and unique — or that the FAA finds safety critical. In that case, the FAA audits programs on a regular basis and monitors progress through frequent contact.

Also, there is an established legal basis that allows the FAA to delegate. In a 1984 lawsuit, "United States versus Varig Airlines," the Supreme Court decided "[u]nder this certification process, the duty to ensure that an aircraft conforms to FAA safety regulations lies with the manufacturer and operator, while the FAA retains responsibility for policing compliance."

The Supreme Court also stated "…a planned program of spot-checking by [Civil Aviation Authority employees], should result in obtaining increased knowledge of conformity of the end product…." (Note, the CAA is now the FAA.)

Delegation is necessary and has been shown to work from the middle of the last century to this very day. We don't really know what happened between Boeing and the FAA regarding the Boeing 737 MAX8, and only time will tell that tale.

## Delegation Works When Properly Managed

The delegation system is highly dependent upon the certificate holder's integrity and openness, as well as upon careful FAA oversight. If one or both of those two elements fail, that delegation, then may fail, but it is a mistake to broad-brush the entire system as a failure. We need delegation because it works — when properly managed.

The FAA exercises delegation because it is an extremely effective and proven way to bridge the gap between regulator and certificate holders without hiring hundreds, if not thousands, of highly trained and well-paid experts whose salaries would be paid by tax dollars.

Delegation is used by every major CAA and has been reviewed and repeatedly approved by Congress while establishing a reliable track record.

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## ABOUT THE AUTHOR

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# PART II:
# 63 Years of Boeing-Style Delegation: *A Short History*

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Organizational delegation was implemented in 1956 when the first Delegation Option Authorization (DOA — an unfortunate acronym) was put in place for aircraft manufacturers.

## Delegation is 92 Years Old

In 1927, one year after the Air Commerce Act was passed, the great-grandfather of the FAA — the Aeronautics Branch of the Department of Commerce — first exercised the power to extend its regulatory function when Louis Hopewell Bauer, first medical director, appointed 50 physicians as Aviation Medical Examiners (AMEs).

The program continues to grow to the degree that neither the FAA nor industry can function as efficiently or safely as they do today without the program. Today, pilots needing medical evaluation pay an AME to determine whether she/he meets Federal Aviation Regulation (FAR) standards.

## A 1950 FAA Delegation Milestone

FAA's history of delegation includes the following important legislative milestone from 1950:

Congress clarified the language for appointment of designees. One reason given for this clarification was "FAA was clearly in need of private sector expertise to keep pace with the growing aviation industry."

## A Second Delegation Milestone in 1973

The critics, particularly Members of Congress, should review past proceedings from 1973 in which delegation was questioned, the rational explained — and the authority remained unchanged:

Congress questioned the ability of the industry to work for FAA. Congressman Jack Brooks said, "It appears the regulated are regulating themselves. Such a procedure is most unique and requires exceptionally critical oversight."

At the same hearing, the FAA Administrator suggested the Act "recognized the practical necessity of utilizing the technical capabilities of the private sector in administering the many complex certification programs required by law."

The Chairman of the National Transportation Safety Board (NTSB) noted, "... the safety problems involving delegation which have come to our attention have involved such isolated circumstances that, with one exception, it is difficult to apply any generalities to our findings."

In 2019, organizational delegation continues to evolve to meet today's FAA demands, just as this function was essential to meeting the aviation safety mission in 1956.

## In 2009, the Organization Designation Authorization (ODA) Was Promulgated

Today a delegated organization is called an Organization Designation Authorization (ODA), which was promulgated in 2009. An ODA is a consolidation of a variety of previously authorized types of organizational delegation such as DOA, Designated Alteration Stations (DAS, 1965), and Special Federal Aviation Regulation number 36 (SFAR36, 1978 which were delegated organizations for aircraft repair).

As explained in the initial notice of proposed rulemaking (NPRM), there is a broadly-based and significant need for the ODA:

*Through the designee system, the FAA can focus resources on new applications of existing technology, on new and evolving technologies, and on the growth in the aviation industry as a whole.*

By consolidating designee programs, the agency can further its standardization efforts and use the resources of the aviation industry more effectively.

## Several Factors Affect the FAA Certification Process

Several factors are beginning to affect the certification process. FAA's workload continues to increase because of increased requests for services and increased levels of complexity in the products being introduced in the aerospace market.

Also, the FAA has focused its resources toward continuing the operational safety of in-service products and developing regulations and airworthiness standards necessary to increase the level of safety.

The net effect is a decrease in FAA capacity to perform certification of products or other certificate holders. In combination, these factors make it more difficult for the FAA to provide timely services to its customers.

## 1993 Report Notes Need for New FAA Approach

A report issued by the U. S. General Accounting Office (GAO), entitled "Aircraft Certification: New FAA Approach Needed to Meet Challenges of Advanced Technology" (GAO/RCED–93–155, September 1993), states that since the late 1950s, official estimates show a

fivefold increase in the work needed to certificate a new aircraft.

During this same period, the FAA's workload increased in areas such as monitoring already certificated aircraft, issuing airworthiness directives, and developing new regulations and policies.

With the rise in workload, the FAA's dependence on the designee system has increased. This is particularly true for certification of new, advanced-technology aircraft software and computer systems.

The allegation that the ODA is an unwarranted abrogation of the FAA's responsibilities is contravened by Congressional and GAO knowledge of and multiple extension of this worldwide recognized practice.

## FAA Aircraft Certification Organization

Congress enacted a specific law — 49 USC §44702(d); Issuance of Certificates — which provides that the Administrator may delegate to a qualified private person, or an employee supervised by that person, a matter related to the examination, testing, and inspection necessary to issue a certificate and the issuance of the certificate. The term ''private person'' means an individual or organization other than a governmental authority.

Today, the FAA Aircraft Certification organization has approximately 1,100 staff, with roughly 300-400 engineers who are responsible for design approvals related to every type certificate (TC), supplemental type certificate (STC), Technical Standard Order Authorization (TSOA), Airworthiness Directive (AD), Service Bulletin (SB), spare part, every engineering designee, and all delegated design organizations.

## Primary Task — Operational Safety of Airplanes in Service

There are about 40 FAA engineers who are responsible for oversight of the Boeing ODA — delegated to approve the vast majority of Boeing design submittals for all models — a huge, continuous effort.

These FAA engineers have other critical responsibilities as well, including their primary task which is the continued operational safety of the enormous fleet of airplanes already in service.

Without delegation, the ability of the entire aviation industry (not just domestic innovation, but also international applications) to design and develop new aircraft, engines, and components would be severely stifled.

The FAA staff need to review and approve these applications would be daunting, cost prohibitive, and the process would be extremely time consuming. However, deterring innovation would have a huge negative impact both on the international aviation industry and the traveling public.

## For Decades, Congress Has Encouraged and Expanded the Limits of Delegation

Congress has not only encouraged delegation for decades; they also have continued to expand the limits of delegation. In the 2012 FAA Reauthorization Act, Section 303: DESIGN AND PRODUCTION ORGANIZATION CERTIFICATES, Congress declared:

"Beginning January 1, 2013, the Administrator may issue a certificate to a design organization, production organization, or design and production organization to authorize the organization to certify compliance of aircraft, aircraft engines, propellers, and appliances with the requirements and minimum standards prescribed under section 44701(a). An organization holding a certificate issued under this subsection shall be known as a certified design and production organization (in this subsection referred to as a `CDPO')."
A CDPO is the *penultimate* delegation, and even though Congress authorized CDPO nearly seven years ago, the FAA has yet to issue a certificate because the FAA, in their discretion, has determined industry is not ready. In other words, Congress has encouraged, pushed, and enabled the FAA to delegate to industry for many, many decades.

## FAA Regulations — The International Gold Standard

The FAA delegation system has been a critical component in developing the safest means of mass transportation the world has ever known. The FAA has exercised their discretion in a manner that makes FAA regulations the international gold standard.

## Delegation — Essential to U.S. Global Competitiveness

Organizational delegation is an essential component of American competitiveness in the global aviation marketplace. To revisit the 1973 testimony of the NTSB Chairman:

"It is clear...that these problems have generally been related to the implementation (*of delegation*) rather that the concept of the program."

Any delegation issues related to the type certification of the Boeing 737 MAX will be found and corrected, and the delegation authority will survive, *because it must.*

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