



**[4910-13]**

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 25**

**[Docket No. FAA-2014-0301; Special Conditions No. 25-550-SC]**

**Special Conditions:** The Boeing Company, Models 737-700, -700C, -800, -900ER, -7, -8, and -9 Series Airplanes; Airplane Electronic Systems Security Protection from Unauthorized External Access

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final special condition; request for comments.

**SUMMARY:** These special conditions are issued for The Boeing Company Models 737-700, -700C, -800, -900ER, -7, -8, and -9 series airplanes. These airplanes will have novel or unusual design features associated with the architecture and connectivity capabilities of the airplanes' computer systems and networks, which may allow access to or by external computer systems and networks and may result in security vulnerabilities to the airplanes' systems. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

**DATES:** The effective date of these special conditions is **[insert date of publication in the Federal Register]**. We must receive your comments by **[insert a date 45 days after date of publication in the Federal Register]**.

**ADDRESSES:** Send comments identified by docket number FAA-2014-0301 using any of the following methods:

- Federal eRegulations Portal: Go to <http://www.regulations.gov/> and follow the online instructions for sending your comments electronically.
- Mail: Send comments to Docket Operations, M-30, U.S. Department of Transportation (DOT), 1200 New Jersey Avenue, SE, Room W12-140, West Building Ground Floor, Washington, D.C., 20590-0001.
- Hand Delivery or Courier: Take comments to Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey Avenue, SE, Washington, D.C., between 9 a.m. and 5 p.m., Monday through Friday, except federal holidays.
- Fax: Fax comments to Docket Operations at 202-493-2251.

*Privacy:* The FAA will post all comments it receives, without change, to <http://www.regulations.gov/>, including any personal information the commenter provides. Using the search function of the docket web site, anyone can find and read the electronic form of all comments received into any FAA docket, including the name of the individual sending the comment (or signing the comment for an association, business, labor union, etc.). DOT's complete Privacy Act Statement can be found in the Federal Register published on April 11, 2000 (65 FR 19477-19478), as well as at <http://DocketsInfo.dot.gov/>.

*Docket:* Background documents or comments received may be read at <http://www.regulations.gov/> at any time. Follow the online instructions for accessing the docket or go to the Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey Avenue, SE, Washington, D.C., between 9 a.m. and 5 p.m., Monday through Friday, except federal holidays.

**FOR FURTHER INFORMATION CONTACT:** Varun Khanna, FAA, Airplane and Flight Crew Interface Branch, ANM-111, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW, Renton, Washington 98057-3356; telephone 425-227-1298; facsimile 425-227-1149.

**SUPPLEMENTARY INFORMATION:**

The FAA has determined that notice of, and opportunity for prior public comment on, these special conditions is impracticable because these procedures would significantly delay issuance of the design approval and thus delivery of the affected aircraft. In addition, the substance of these special conditions has been subject to the public comment process in several prior instances with no substantive comments received. The FAA therefore finds that good cause exists for making these special conditions effective upon publication in the Federal Register.

**Comments Invited**

We invite interested people to take part in this rulemaking by sending written comments, data, or views. The most helpful comments reference a specific portion of the special conditions, explain the reason for any recommended change, and include supporting data.

We will consider all comments we receive by the closing date for comments. We may change these special conditions based on the comments we receive.

**Background**

On January 27, 2012, The Boeing Company applied for an amendment to Type Certificate No. A16WE to include new minor models, 737-7, -8, and -9. The Models 737-7, -8, and -9, which are derivatives of the 737-700, -800, -900ER currently approved under Type Certificate No. A16WE, are passenger series airplanes designed to substantially reduce fuel burn and community noise. In addition, the design will include a new CFM LEAP-1B engine with a

68.4-inch diameter fan, 8-inch longer nose gear to accommodate the larger engine, a reafted tailcone (which requires the elevator to be trimmed and the elevator tab to be relocated outboard to accommodate the new contours), new horizontal stabilizer strakelets, a retractable auxiliary power unit inlet door, fly-by-wire spoilers, strengthened flight deck bulkhead, and a new winglet design.

### **Type Certification Basis**

Under the provisions of Title 14, Code of Federal Regulations (14 CFR) 21.101, The Boeing Company must show that the Models 737-700, -700C, -800, -900ER, -7, -8, and -9 series airplanes meet the applicable provisions of the regulations incorporated by reference in Type Certificate No. A16WE or the applicable regulations in effect on the date of application for the change to the type certificate. The regulations incorporated by reference in the type certificate are commonly referred to as the “original type certification basis.” In addition, the certification basis includes certain special conditions, exemptions, or later amended sections of the applicable part that are not relevant to these special conditions.

If the Administrator finds that the applicable airworthiness regulations (i.e., 14 CFR part 25) do not contain adequate or appropriate safety standards for the 737-700, -700C, -800, -900ER, -7, -8, and -9 because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

Special conditions are initially applicable to the model for which they are issued. Should the type certificate for that model be amended later to include any other model that incorporates the same or similar novel or unusual design feature, or should any other model already included on the same type certificate be modified to incorporate the same novel or unusual design feature, the special conditions would also apply to the other model.

In addition to the applicable airworthiness regulations and special conditions, the 737-700, -700C, -800, -900ER, -7, -8, and -9 must comply with the fuel vent and exhaust emission requirements of 14 CFR part 34 and the noise certification requirements of 14 CFR part 36.

The FAA issues special conditions, as defined in 14 CFR 11.19, in accordance with § 11.38, and they become part of the type-certification basis under § 21.101.

### **Novel or Unusual Design Features**

The Boeing Models 737-700, -700C, -800, -900ER, -7, -8, and -9 series airplanes will incorporate the following novel or unusual design features: Digital systems architecture composed of several connected networks. This network architecture and network configuration may be used for or interfaced with a diverse set of functions, including:

- Flight safety related control, communication, and navigation systems (aircraft control domain);
- Operator business and administrative support (operator information domain); and
- Passenger information and entertainment systems (passenger entertainment domain), and the capability to allow access to or by external network sources.

### **Discussion**

The proposed architecture and network configuration of the Models 737-700, -700C, -800, -900ER, -7, -8, and -9 series airplanes may allow increased connectivity to and access from external network sources and operations and maintenance networks to the aircraft control domain and operator information domain. The airplane control domain and operator information domain perform functions required for the safe operation and maintenance of the airplane. Previously these domains had very limited connectivity with external network sources.

The architecture and network configuration may allow the exploitation of network security vulnerabilities resulting in intentional or unintentional destruction, disruption, degradation, or exploitation of data, systems, and networks critical to the safety and maintenance of the airplane.

The existing regulations and guidance material did not anticipate these types of airplane system architectures. Furthermore, 14 CFR regulations and current system safety assessment policy and techniques do not address potential security vulnerabilities, which could be exploited by unauthorized access to airplane networks, data buses, and servers. Therefore, these special conditions and a means of compliance are proposed to ensure that the security (i.e., confidentiality, integrity, and availability) of airplane systems is not compromised by unauthorized wired or wireless electronic connections.

### **Applicability**

As discussed above, these special conditions are applicable to the Models 737-700, -700C, -800, -900ER, -7, -8, and -9 series airplanes. Should The Boeing Company apply at a later date for a change to the type certificate to include another model incorporating the same novel or unusual design feature, the special conditions would apply to that model as well.

### **Conclusion**

This action affects only certain novel or unusual design features on certain model series of airplanes. It is not a rule of general applicability.

The substance of these special conditions has been subjected to the notice and comment period in several prior instances and has been derived without substantive change from those previously issued. It is unlikely that prior public comment would result in a significant change from the substance contained herein. Therefore, because a delay would significantly affect the

certification of the airplane, the FAA has determined that prior public notice and comment are unnecessary and impracticable, and good cause exists for adopting these special conditions upon issuance. The FAA is requesting comments to allow interested persons to submit views that may not have been submitted in response to the prior opportunities for comment described above.

### **List of Subjects in 14 CFR Part 25**

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701, 44702, 44704.

### **The Special Conditions**

Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the type certification basis for The Boeing Company Models 737-700, -700C, -800, -900ER, -7, -8, and -9 series airplanes.

#### **Airplane Electronic Systems Security Protection from Unauthorized External Access**

1. The applicant must ensure that the airplanes' electronic systems are protected from access by unauthorized sources external to the airplane, including those possibly caused by maintenance activity.
2. The applicant must ensure that electronic system security threats are identified and assessed, and that effective electronic system security protection strategies are implemented to protect the airplane from all adverse impacts on safety, functionality, and continued airworthiness.
3. The applicant must establish appropriate procedures to allow the operator to ensure that continued airworthiness of the airplane is maintained, including all post type certification modifications that may have an impact on the approved electronic system security safeguards.

Issued in Renton, Washington, on May 5, 2014.

Jeffrey E. Duven  
Manager, Transport Airplane Directorate  
Aircraft Certification Service

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