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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. FAA–2017–0580; Special Conditions No. 25–701–SC]

Special Conditions: ALOFT AeroArchitects, Boeing Model 737–800 Airplanes; Aircraft Electronic System Security Protection From Unauthorized External Access

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions; request for comments.

SUMMARY: These special conditions are issued for the Boeing Model 737–800 airplane. These airplanes, as modified by ALOFT AeroArchitects (ALOFT), will have a novel or unusual design feature when compared to the state of technology envisioned in the airworthiness standards for transport-category airplanes. This design feature is a Wireless Access Point (WAP), and connection of an improved Wireless Quick Access Recorder (WQAR) to the satellite communications (SATCOM) system, to provide in-flight access to information, in the WQAR, to ground personnel. 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: This action is effective on ALOFT on October 17, 2017. Send your comments by December 1, 2017.

ADDRESSES: Send comments identified by docket number FAA–2017–0580 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, DC, 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, DC, 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).

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 Docket Operations in Room W12–140 of the West Building Ground Floor at 1200 New Jersey Avenue SE., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Varun Khanna, FAA, Airplane and Flightcrew Interface Section, AIR–671, Transport Standards Branch, Policy and Innovation Division, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington 98057–3356; telephone 425–227–1298; facsimile 425–227–1320.

SUPPLEMENTARY INFORMATION: The substance of these special conditions has been subject 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.

In addition, for the reasons stated above, the FAA finds it unnecessary to delay the effective date and 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 December 8, 2016, ALOFT applied for a supplemental type certificate for installing a Wireless Access Point (WAP), and connection of an improved Wireless Quick Access Recorder (WQAR) to the satellite communications (SATCOM) system, in a Boeing Model 737–800 airplane. The Boeing Model 737–800 airplane is a twin jet engine, short-to-medium-range passenger airplane with a maximum takeoff weight of 174,200 pounds and seating for 189 passengers.

Type Certification Basis

Under the provisions of Title 14, Code of Federal Regulations (14 CFR) 21.101, ALOFT must show that the Boeing Model 737–800, as changed, continues to meet the applicable provisions of the regulations listed in Type Certificate No. A16WE or the applicable regulations in effect on the date of application for the change, except for earlier amendments as agreed upon by the FAA.

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 Boeing Model 737–800 airplane 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 applicant apply for a supplemental type certificate to

modify any other model included on the same type certificate, to incorporate the same novel or unusual design feature, these special conditions would also apply to the other model under § 21.101.

In addition to the applicable airworthiness regulations and special conditions, the Boeing Model 737–800 airplane 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 Model 737–800 airplane will incorporate the following novel or unusual design features:

A Wireless Access Point (WAP), and connection of an improved Wireless Quick Access Recorder (WQAR) to the satellite communications (SATCOM) system, to provide in-flight access to information, in the WQAR, to ground personnel.

Discussion

The applicant supplemental type certificate (STC) for the Boeing Model 737–800 airplane design adds wired and wireless access points to the aircraft-control domain and airline-information-services domain networks, which do not exist on current airplanes. The aircraft-control domain consists of the airplane electronic systems, equipment, instruments, networks, servers, software and hardware components, databases, etc., which are part of the type design of the airplane and are installed in the airplane to enable the safe operation of the airplane. These can also be referred to as flight-safety-related systems, and include flight controls, communication, display, monitoring, navigation, and other systems.

The airline-information services domain generally consists of functions that are managed or controlled by the operator, such as administrative functions and cabin-support functions.

This design creates a potential for unauthorized access to aircraft-control and airline-information-services domains, as well as security vulnerabilities related to the introduction of viruses, worms, user mistakes, and intentional sabotage of airplane electronic assets such as networks, systems, and databases.

Historically, the operating systems for current airplanes are proprietary. Therefore, they are not as susceptible to corruption from worms, viruses and other malicious actions as are more widely used commercial operating systems, such as Microsoft Windows, because access to the design details of the proprietary operating system is limited to the system developer and airplane integrator. Some systems installed on the Boeing Model 737–800 airplane, as modified by ALOFT, will use operating systems that are widely used and commercially available from third-party software suppliers. The security vulnerabilities of these operating systems may be more widely known than are the vulnerabilities of proprietary operating systems currently used by avionics manufacturers. The increased networking of systems based on these popular operating systems increases the opportunity for attack by a larger community, especially those using scripted attacks.

While the FAA has developed policy and guidance on the use and protection of certain databases and software, these documents did not anticipate the potential for access to the airplane systems, networks, and software components by external systems, and the resulting potential security vulnerabilities from access by unauthorized users or from the potential corruption of airplane system software resources (applications, databases, configuration files, etc.) by worms, viruses or other malicious entities.

The major differences between the applicant's STC for the Boeing Model 737–800 airplane implementation and typical implementations include:

1. The electronic transmission of updates to airplane servers of databases and software applications using ground data networks rather than physically controlled media.

2. The connection of external data networks or devices to airplane data networks of the Aircraft Control Domain and the Airline Information Services Domain, which may use wired or wireless connections.

3. The connection of wireless devices operated by the flight crew or operator maintenance personnel to the airplane data networks of the Aircraft Control Domain, and connections between the Airline Information Services Domain (including unprotected electronic flight bags and maintenance computers) and the Aircraft Control Domain.

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.

Applicability

As discussed above, these special conditions are applicable to the Boeing Model 737–800 airplane. Should ALOFT apply at a later date for a supplemental type certificate to modify any other model included on Type Certificate No. A16WE to incorporate the same novel or unusual design feature, these special conditions would apply to that model as well.

Conclusion

This action affects only certain novel or unusual design features on one model series of airplanes. It is not a rule of general applicability and affects only the applicant who applied to the FAA for approval of these features on the airplane.

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 Boeing Model 737–800 airplanes modified by ALOFT.

1. The applicant must ensure airplane electronic system security protection 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 aircraft 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 September 28, 2017.

Suzanne Masterson,

Acting Manager, Transport Standards Branch, Policy and Innovation Division, Aircraft Certification Service.

[FR Doc. 2017–22415 Filed 10–16–17; 8:45 am]

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