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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. FAA-2016-4819; Special Conditions No. 25-615-SC]

Special Conditions: Bombardier Inc. Model BD-700-2A12 and BD-700-2A13 Airplanes; Airplane 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 Bombardier Inc. Model BD-700-2A12 and BD-700-2A13 airplanes. These airplanes will have a digital-systems network architecture composed of several connected networks that may allow access to or by external computer systems and networks, and may result in airplane systems-security vulnerabilities. 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 Bombardier Inc. on **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. We must receive your comments by **[INSERT DATE 45 DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER]**.

ADDRESSES: Send comments identified by docket number FAA-2016-4819 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), 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 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 Flight Crew Interface, 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 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 June 13, 2012, Bombardier Inc. applied for an amended type certificate for their new Model BD-700-2A12 and BD-700-2A13 airplanes. These airplanes are derivatives of the Model BD-700 series of airplanes, and are marketed as the Bombardier Global 7000 and Global 8000, respectively. These airplanes are ultra-long-range, executive-interior business jets.

The Model BD-700-2A12 and BD-700-2A13 airplanes have a maximum certified passenger capacity of 19, and include new high-speed transonic wings with improved aerodynamic efficiency and a pressurized cabin for luxury interiors.

Type Certification Basis

Under the provisions of Title 14, Code of Federal Regulations (14 CFR) 21.101, Bombardier Inc. must show that the Model BD-700-2A12 and BD-700-2A13 airplanes meet the applicable provisions of part 25 as amended by Amendments 25-1 through 25-137.

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 Model BD-700-2A12 and BD-700-2A13 airplanes 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 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, these special conditions would also apply to the other model under § 21.101.

In addition to the applicable airworthiness regulations and special conditions, the Model BD-700-2A12 and BD-700-2A13 airplanes 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 Model BD-700-2A12 and BD-700-2A13 airplanes will incorporate the following novel or unusual design feature: A digital-systems network architecture composed of several connected networks. This network architecture and network configuration will have the

capability to allow access to or by external network sources, and may be used for or interfaced with a diverse set of functions, including:

- Flight-safety-related control, communication, and navigation systems (airplane-control domain);
- Operator business and administrative support (operator-information domain); and
- Passenger information and entertainment systems (passenger-entertainment domain)

Discussion

The Model BD-700-2A12 and BD-700-2A13 airplanes' digital-systems network architecture is novel or unusual for commercial transport airplanes as it allows connection to airplane electronic systems and networks, and access from sources external to the airplane (e.g., operator networks, wireless devices, Internet connectivity, service-provider satellite communications, electronic flight bags, etc.) to the previously isolated airplane electronic assets. Airplane electronic assets include electronic equipment and systems, instruments, networks, servers, software and electronic components, field-loadable software and hardware applications, databases, etc. This proposed design may result in network security vulnerabilities from intentional or unintentional corruption of data and systems required for the safety, operation, and maintenance of the airplane.

The existing regulations and guidance material did not anticipate these types of digital-system network architectures, nor access to airplane systems. Furthermore, 14 CFR part 25 regulations, and current system-safety assessment policy and techniques, do not address potential security vulnerabilities by unauthorized access to airplane data busses and servers. Therefore, these special conditions are issued to ensure that the security, integrity, and availability of

airplane systems are not compromised by certain wired or wireless electronic connections between airplane data busses and networks.

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 Model BD-700-2A12 and BD-700-2A13 airplanes. Should Bombardier Inc. apply at a later date for a change to the type certificate to include another model incorporating the same novel or unusual design feature, these special conditions would apply to that model as well.

Conclusion

This action affects only a certain novel or unusual design feature on one 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, 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 electronic system-security protection from unauthorized external access on Bombardier Inc. Model BD-700-2A12 and BD-700-2A13 airplanes.

1. The applicant must ensure that the airplane 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 April 8, 2016.

Michael Kaszycki
Acting Manager, Transport Airplane Directorate
Aircraft Certification Service
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