DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. FAA–2019–0488; Notice No. 25–19–09–SC]

Special Conditions: Voyageur Aerotech Inc., Bombardier DHC–8–100, DHC–8–200, DHC–8–300 and DHC–8–400 Series Airplanes; Installed Rechargeable Lithium Batteries

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed special conditions.

SUMMARY: This action proposes special conditions for the Bombardier Model No. DHC–8–100, DHC–8–200, DHC–8–300, and DHC–8–400 series airplanes. These airplanes, as modified by Voyageur Aerotech Inc. (Voyageur), will have 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 rechargeable lithium battery pack inside the Emergency Backup Power Supply. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These proposed 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: Send comments on or before September 5, 2019.

ADDRESSES: Send comments identified by Docket No. FAA–2019–0488 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 website, 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: Nazih Khaouly, Airplane and Flight Crew Interface Section, AIR–671, Transport Standards Branch, Policy and Innovation Division, Aircraft Certification Service, Federal Aviation Administration, 2200 South 216th Street, Des Moines, Washington 98198; telephone and fax 206–231–3160; email *Nazih.Khaouly@faa.gov.*

SUPPLEMENTARY INFORMATION:

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 September 10, 2018, Voyageur applied for a supplemental type certificate for a rechargeable lithium battery pack inside the Emergency Backup Power Supply in the Model DHC–8–100, DHC–8–200, DHC–8–300, and DHC–8–400 series airplanes. The Bombardier Model DHC–8–100, DHC–8–200, DHC–8–300, and DHC–8–400 series airplanes are twin engine powered airplanes with standard seating provisions for up to 86 passengers, depending on model, and a maximum takeoff weight of between 33,000 lbs. and 65,200 lbs., depending on series model.

Type Certification Basis

Under the provisions of title 14, Code of Federal Regulations (14 CFR) 21.101, Voyageur must show that the Model DHC–8–100, DHC–8–200, DHC–8–300, and DHC–8–400 series airplanes, as changed, continue to meet the applicable provisions of the regulations listed in Type Certificate No. A13NM 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 Bombardier Model DHC–8–100, DHC–8–200, DHC–8–300, and DHC–8–400 series 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 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 Bombardier Model DHC–8–100, DHC–8–200, DHC–8–300, and DHC–8–400 series 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 Bombardier Model DHC–8–100, DHC–8–200, DHC–8–300, and DHC–8–400 series airplanes will incorporate the following novel or unusual design feature:

The installation of a rechargeable lithium battery pack inside the Emergency Backup Power Supply. Known uses of rechargeable and non-rechargeable lithium batteries on airplanes include:

- Flightdeck and avionics systems such as displays, global positioning systems, cockpit voice recorders, flight data recorders, underwater-locator-beacons, navigation computers, integrated avionics computers, satellite network/communication systems, communication management units, and remote monitor electronic line replaceable units;
- Cabin safety, entertainment and communications equipment including emergency locator transmitters, life

rafts, escape slides, seat belt air bags, cabin management systems, Ethernet switches, routers and media servers, wireless systems, internet/in-flight entertainment systems, satellite televisions, remotes and handsets; and

- Systems in cargo areas including door controls, sensors, video surveillance equipment and security systems.

Discussion

Rechargeable lithium batteries are considered to be a novel or unusual design feature in transport category airplanes, with respect to the requirements in § 25.1353. This type of battery has certain failure, operational, and maintenance characteristics that differ significantly from those of the nickel-cadmium and lead-acid rechargeable batteries currently approved for installation on transport category airplanes. These batteries introduce higher energy levels into airplane systems through new chemical compositions in various battery-cell sizes and construction. Interconnection of these cells in battery packs introduces failure modes that require unique design considerations, such as provisions for thermal management.

These proposed special conditions are substantively similar to special conditions the FAA has released in the past. The special conditions proposed have been drafted into a plain English format, reorganized for clarity, and provide more prescriptive instructions than previously released special conditions.

Special Condition 1 requires that each individual cell within a battery be designed to maintain safe temperatures and pressures. Special Condition 2 addresses these same issues but for the entire battery. Special Condition 2 requires that the battery be designed to prevent propagation of a thermal event, such as self-sustained, uncontrolled increases in temperature or pressure from one cell to adjacent cells.

Special Conditions 1 and 2 are intended to ensure that the cells and battery are designed to eliminate the potential for uncontrollable failures. However, a certain number of failures will occur due to various factors beyond the control of the designer. Therefore, other special conditions are intended to protect the airplane and its occupants if failure occurs.

Special Conditions 3, 7, and 8 are self-explanatory, and the FAA does not provide further explanation for them at this time.

Special Condition 4 clarifies that the flammable-fluid fire-protection requirements of 14 CFR 25.863 apply to rechargeable lithium battery installations. Section 25.863 is applicable to areas of the airplane that could be exposed to flammable fluid leakage from airplane systems. Rechargeable lithium batteries contain electrolyte that is a flammable fluid.

Special Condition 5 requires each rechargeable lithium battery installation to not damage surrounding structure or adjacent systems, equipment, or electrical wiring from corrosive fluids or gases that may escape in such a way as to cause a major or more severe failure condition. Special Condition 6 requires each rechargeable lithium battery installation to have provisions to prevent any hazardous effect on airplane structure or systems caused by the maximum amount of heat it can generate due to any failure of it or its individual cells. The means of meeting special conditions 5 and 6 may be the same, but they are independent requirements addressing different hazards. Special Condition 5 addresses corrosive fluids and gases, whereas special condition 6 addresses heat.

Special Condition 9 requires rechargeable lithium batteries to have automatic means, for charge rate and disconnect, due to the fast acting nature of lithium battery chemical reactions. Manual intervention would not be timely or effective in mitigating the hazards associated with these batteries.

Although these special conditions require specific functionalities and capabilities, and address certain critical failure modes of rechargeable lithium batteries and their installations, the applicant must also meet the requirements of §§ 25.1301, 25.1309, and 25.1709, when applicable, in addition to these special conditions. To date, in-service experience has shown that rechargeable lithium battery thermal/pressure runaway conditions are not extremely improbable. Applicants must assume such failures could occur sometime during the life of the battery installation when demonstrating compliance with § 25.1309.

If an applicant proposes to install a rechargeable lithium battery in a rotor burst zone, the applicant must assess the rotor burst induced damage to the battery to show compliance with § 25.903(d)(1) in conjunction with showing compliance with the rechargeable lithium battery special condition.

These special conditions apply to all rechargeable lithium battery installations in lieu of § 25.1353(b)(1) through (4) at amendment 25–123 or § 25.1353(c)(1) through (4) at earlier amendments. Those regulations remain in effect for other battery installations.

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 Bombardier Model DHC–8–100, DHC–8–200, DHC–8–300, and DHC–8–400 series airplanes. Should Voyageur apply at a later date for a supplemental type certificate to modify any other model included on Type Certificate No. A13NM 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 Model DHC–8–100, DHC–8–200, DHC–8–300, and DHC–8–400 series 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.

Authority Citation

The authority citation for these special conditions is as follows:

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

The Proposed Special Conditions

Accordingly, the Federal Aviation Administration (FAA) proposes the following special conditions as part of the type certification basis for Bombardier Model DHC–8–100, DHC–8–200, DHC–8–300, and DHC–8–400 series airplanes, as modified by Voyageur Aerotech Inc.

In lieu of title 14, Code of Federal Regulations (14 CFR) 25.1353(b)(1) through (4) at amendment 25–123 or § 25.1353(c)(1) through (4) at earlier amendments, each rechargeable lithium battery installation must:

1. Be designed to maintain safe cell temperatures and pressures under all foreseeable operating conditions to prevent fire and explosion.

2. Be designed to prevent the occurrence of self-sustaining, uncontrollable increases in temperature or pressure, and automatically control the charge rate of each cell to protect against adverse operating conditions,

such as cell imbalance, back charging, overcharging, and overheating.

3. Not emit explosive or toxic gases, either in normal operation or as a result of its failure that may accumulate in hazardous quantities within the airplane.

4. Meet the requirements of § 25.863.

5. Not damage surrounding structure or adjacent systems, equipment, or electrical wiring from corrosive fluids or gases that may escape in such a way as to cause a major or more-severe failure condition.

6. Have provisions to prevent any hazardous effect on airplane structure or systems caused by the maximum amount of heat it can generate due to any failure of it or its individual cells.

7. Have a failure sensing and warning system to alert the flightcrew if its failure affects safe operation of the airplane.

8. Have a monitoring and warning feature that alerts the flightcrew when its charge state falls below acceptable levels if its function is required for safe operation of the airplane.

9. Have a means to automatically disconnect from its charging source in the event of an over-temperature condition, cell failure or battery failure.

Note: A battery system consists of the battery, battery charger and any protective, monitoring and alerting circuitry or hardware inside or outside of the battery. It also includes vents (where necessary) and packaging. For the purpose of this special condition, a battery and the battery system is referred to as a battery.

Issued in Des Moines, Washington, on July 16, 2019.

Victor Wicklund,

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

[FR Doc. 2019–15478 Filed 7–19–19; 8:45 am]

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 71

[Docket No. FAA–2019–0550; Airspace Docket No. 19–AGL–23]

RIN 2120–AA66

Proposed Amendment of Class E Airspace; St. James, MN

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: This action proposes to amend the Class E airspace extending upward from 700 feet above the surface at St. James Municipal Airport, St. James, MN. The FAA is proposing this action as the result of an airspace review caused by the decommissioning of the Fairmont VHF omnidirectional range (VOR) navigation aid, which provided navigation information for the instrument procedures at this airport, as part of the VOR Minimum Operational Network (MON) Program. Airspace redesign is necessary for the safety and management of instrument flight rules (IFR) operations at this airport.

DATES: Comments must be received on or before September 5, 2019.

ADDRESSES: Send comments on this proposal to the U.S. Department of Transportation, Docket Operations, West Building Ground Floor, Room W12–140, 1200 New Jersey Avenue SE, Washington, DC 20590; telephone (202) 366–9826, or (800) 647–5527. You must identify FAA Docket No. FAA–2019–0550; Airspace Docket No. 19–AGL–23, at the beginning of your comments. You may also submit comments through the internet at *http://www.regulations.gov.* You may review the public docket containing the proposal, any comments received, and any final disposition in person in the Dockets Office between 9:00 a.m. and 5:00 p.m., Monday through Friday, except federal holidays.

FAA Order 7400.11C, Airspace Designations and Reporting Points, and subsequent amendments can be viewed online at *http://www.faa.gov/air_traffic/publications/.* For further information, you can contact the Airspace Policy Group, Federal Aviation Administration, 800 Independence Avenue SW, Washington, DC 20591; telephone: (202) 267–8783. The Order is also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of FAA Order 7400.11C at NARA, call (202) 741–6030, or go to *http://www.archives.gov/federal-register/cfr/ibr-locations.html.*

FAA Order 7400.11, Airspace Designations and Reporting Points, is published yearly and effective on September 15.

FOR FURTHER INFORMATION CONTACT: Jeffrey Claypool, Federal Aviation Administration, Operations Support Group, Central Service Center, 10101 Hillwood Parkway, Fort Worth, TX 76177; telephone (817) 222–5711.

SUPPLEMENTARY INFORMATION:

Authority for This Rulemaking

The FAA's authority to issue rules regarding aviation safety is found in Title 49 of the United States Code. Subtitle I, Section 106 describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the agency's authority. This rulemaking is promulgated under the authority described in Subtitle VII, Part A, Subpart I, Section 40103. Under that section, the FAA is charged with prescribing regulations to assign the use of airspace necessary to ensure the safety of aircraft and the efficient use of airspace. This regulation is within the scope of that authority as it would amend the Class E airspace extending upward from 700 feet above the surface at St. James Municipal Airport, St. James, MN, to support IFR operations at this airport.

Comments Invited

Interested parties are invited to participate in this proposed rulemaking by submitting such written data, views, or arguments, as they may desire. Comments that provide the factual basis supporting the views and suggestions presented are particularly helpful in developing reasoned regulatory decisions on the proposal. Comments are specifically invited on the overall regulatory, aeronautical, economic, environmental, and energy-related aspects of the proposal. Communications should identify both docket numbers and be submitted in triplicate to the address listed above. Commenters wishing the FAA to acknowledge receipt of their comments on this notice must submit with those comments a self-addressed, stamped postcard on which the following statement is made: ''Comments to Docket No. FAA–2019–0550; Airspace Docket No. 19–AGL–23.'' The postcard will be date/time stamped and returned to the commenter.

All communications received before the specified closing date for comments will be considered before taking action on the proposed rule. The proposal contained in this notice may be changed in light of the comments received. A report summarizing each substantive public contact with FAA personnel concerned with this rulemaking will be filed in the docket.

Availability of NPRMs

An electronic copy of this document may be downloaded through the internet at *http://www.regulations.gov.* Recently published rulemaking documents can also be accessed through the FAA's web page at *http://www.faa.gov/air_traffic/publications/airspace_amendments/.*

You may review the public docket containing the proposal, any comments