Continued Airworthiness Notification to the International Community

To: Civil Aviation Authorities Date: July 13, 2020

From: Federal Aviation Administration (FAA)
Aircraft Certification Service
Compliance & Airworthiness Division, AIR-700

Subject: This message provides information regarding the FAA's continued operational safety activities related to certain Boeing Model 737-8 and 737-9 (737 MAX) airplanes, 787 airplanes equipped with GEnX-1B engines, and 747-8 airplanes equipped with GEnX-2B engines.

Situation description: The FAA has received a report indicating that a Boeing Model 787 airplane equipped with General Electric Company (GE) GEnx-1B model turbofan engines experienced temporary thrust anomalies on both engines during descent on March 29, 2019. Review of the data indicated the thrust anomalies resulted from fuel control instability. The event airplane had recently been treated with Kathon FP 1.5 biocide for suspected microbial growth contamination. Salt crystals can form in the fuel under certain conditions when Kathon FP 1.5 biocide is applied. These salt crystals have the potential to cause slow response of engine hydromechanical control features, resulting in compressor stalls or flameouts, potentially on both engines. Having similar fuel system architecture as the GE GEnx engines, the CFM International S.A. (CFM) LEAP-1B model turbofan engines, which are installed on 737 MAX airplanes, are also considered susceptible to loss of thrust control for both engines. This condition, if not addressed, could result in malfunction of the engine's control system hydromechanical unit due to undispersed Kathon FP 1.5 biocide contaminating and restricting the movement of internal parts. Because the fuel systems for both engines on an affected airplane are likely to be similarly affected, there is the potential for loss of thrust control on both engines. Loss of thrust control on both engines could result in failure to climb on takeoff, a forced off-airport landing, or an unacceptably high flightcrew workload.

In addition, the engine manufacturers GE and CFM have informed the FAA of an unsafe condition associated with Model 737 MAX, 787, and 747-8 airplanes equipped with GE or CFM engines. GE and CFM are recommending eliminating the use of Kathon FP 1.5 biocide due to the potential side effects that the chemical could cause to internal engine components.

The FAA concurs with the engine manufacturer's safety determination, and plans to issue an immediately adopted rule (IAR) for the affected Boeing model airplanes. The FAA and Boeing are not aware of any operators of 787s or 747-8s that currently have airplanes in operation or in storage that are using Kathon FP 1.5. The FAA is aware several operators in the grounded 737MAX fleet that have fuel treated with Kathon FP 1.5 and maybe ferrying their aircraft for modifications and/or maintenance.

Aircraft/engine make, model, and series:

The Boeing Company Model 737-8 and 737-9 (737 MAX) airplanes equipped with CFM LEAP-1B engines
The Boeing Company Model 787 airplanes equipped with GEnX-1B engines
The Boeing Company Model 747-8 airplanes equipped with GEnX-2B engines

Affected U.S.-registered fleet:

Approximately 75 Model 737 MAX airplanes as of June 22, 2020
Approximately 109 Model 787 airplanes as of June 22, 2020
Approximately 28 Model 747-8 airplanes as of June 22, 2020

Affected Worldwide fleet:

Approximately 385 Model 737 MAX airplanes as of June 22, 2020
Approximately 609 Model 787 airplanes as of June 22, 2020
Approximately 137 Model 747-8 airplanes as of June 22, 2020

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