NOTICE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

N 8900.428

National Policy

Effective Date:
8/4/17

Cancellation Date:
8/4/18

SUBJ: Part 135, § 135.163(f)—Electrical Power Requirements for Pilatus PC-12 Aircraft Conducting Passenger-Carrying Operations Under IFR

1. Purpose of This Notice. This notice provides guidance and information to aviation safety inspectors (ASI) responsible for oversight of Title 14 of the Code of Federal Regulations (14 CFR) part 135 certificate holders that operate Pilatus PC-12, PC-12/45, and PC-12/47 aircraft, serial numbers 101-888 (legacy Pilatus), under instrument flight rules (IFR) passenger-carrying operations. The information contained in this notice will assist ASIs in determining if the legacy Pilatus aircraft comply with the electrical power requirements to conduct IFR passenger-carrying operations under part 135, § 135.163(f).

2. Audience. The primary audience for this notice is Flight Standards District Office (FSDO) ASIs with oversight of part 135 certificate holders that utilize the Pilatus PC-12 aircraft in passenger-carrying operations under IFR. The secondary audience includes Flight Standards (AFS) branches and divisions in the regions and headquarters (HQ).

3. Where You Can Find This Notice. You can find this notice on the MyFAA employee website https://employees.faa.gov/tools_resources/orders_notices. Inspectors can access this notice through the Flight Standards Information Management System (FSIMS) at http://fsims.avs.faa.gov. Operators can find this notice on the Federal Aviation Administration's (FAA) website at http://fsims.faa.gov/. This notice is available to the public at http://www.faa.gov/regulations_policies/orders_notices.

4. Background.

a. General. On August 6, 1997, the FAA published the final rule which expanded the provisions to conduct IFR passenger-carrying operations in single-engine aircraft. These additional requirements include the electrical power requirements of § 135.163(f). The FAA authorizes these operations through the issuance of Operations Specifications (OpSpec) A046, Single-Engine Instrument Flight Rules (SEIFR) Passenger-Carrying Operations Under 14 CFR Part 135; D103, Additional Maintenance Requirements—Single-Engine Instrument Flight Rules (SEIFR); and when required, D104, Additional Maintenance Requirements—Emergency Equipment.

b. Section 135.163(f) Compliance. Section 135.163(f) contains the electrical power requirements for single-engine aircraft carrying passengers under IFR. Certificate holders can comply with § 135.163(f) by two means, § 135.163(f)(1) or § 135.163(f)(2), either of which may be used to meet the electrical power requirements portion of the regulation. Section 135.163(f)(1) requires "two independent electrical power generating sources each of which is able to supply all probable combinations of continuous inflight electrical loads for required instruments and equipment." In contrast, § 135.163(f)(2) requires, "in addition to the primary electrical power generating source, a standby battery or an alternate source of electric power that is capable of supplying 150% of the electrical loads of all required instruments and equipment necessary for safe emergency operation of the aircraft for at least one hour."

5. Guidance. The legacy Pilatus airplanes are equipped with two electrical generating sources, Generator 1 (GEN 1) and Generator 2 (GEN 2), and a battery. GEN 1 is a 300-amp generator capable of carrying the required electrical loads for the aircraft, including the deicing/anti-icing equipment. GEN 2 is a 115-amp generator that is not capable of carrying the electrical demand from the required instruments and equipment installed on the airplane when including the installed deice/anti-ice systems. Therefore, the legacy Pilatus airplanes with the 115-amp generator (GEN 2) cannot comply with the electrical power requirements of § 135.163(f)(1).

a. Section 135.163(f)(2). Under § 135.163(f)(2), the electrical load may be reduced to that required for the safe emergency operation of the aircraft. The regulation also specifies that a standby battery or the alternate source of electrical power must provide for 150% of the electrical loads of all required instruments and equipment necessary for safe emergency operation of the aircraft for at least one hour. With proper procedures, the legacy Pilatus airplanes with the 115-amp GEN 2 are able to comply with the electrical power requirements of § 135.163(f)(2).

b. Emergency Operations.

(1) When operating a legacy Pilatus airplane in accordance with § 135.163(f)(2), a GEN 1 failure is considered to be an emergency operation. This requires:

(a) Immediate action that includes exiting and the further avoidance of icing conditions, and landing as soon as possible at the nearest suitable airport.

(b) Monitoring the electrical load on the remaining generator. Although the airplane will automatically shed loads, it may still be necessary to manually reduce electrical loads to prevent exceeding the GEN 2 output of 115 amps. Exceeding GEN 2's capacity could result in a simultaneous discharging of the battery or a failure of GEN 2 to remain connected and supplying power to the electrical system. If disconnected and unable to reconnect GEN 2, the aircraft becomes entirely dependent on the battery for electrical power.

> **Note:** The windshield heat and the propeller heat are two high electrical load items on the legacy Pilatus airplanes that can cause an electrical overload of the 115-amp GEN 2, even after the automatic load shedding and AFM procedures have been completed.

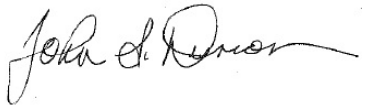
(2) Although not restricted from utilizing GEN 2's full capacity to meet operational needs during emergency operations, the certificate holder's procedures must include the ability to shed enough electrical loads to comply with the calculated electrical load requirements of § 135.163(f)(2), which on the legacy Pilatus is 76.7 amps (76.7 amps X 150% = 115-amps GEN 2 capacity). Since additional load shedding is required to comply with § 135.163(f)(2), certificate holders must develop aircraft-specific procedures and training and submit them to the FAA for review and acceptance or approval. Unless equipped with the exact same electrical equipment, an electrical load analysis (ELA) should be conducted for each airplane. The different electrical power requirements from aircraft to aircraft should be addressed when certificate holders develop their electrical load reduction procedures and training.

c. PT6A-67P Engine. Available on the legacy Pilatus airplanes is a Supplemental Type Certificate (STC) for the installation of a PT6A-67P engine with two 300-amp generators (GEN 1 and GEN 2). Airplanes fitted with the two 300-amp generators may be able to comply with the electrical power requirements of § 135.163(f)(1). Certificate holders with this modification should ensure that the aircraft's electrical system components are not overloaded due to the additional output from GEN 2, when operating with a failure of GEN 1. If required to prevent electrical system component overload, the certificate holder must develop electrical load reduction procedures.

d. OpSpec D104. Certificate holders complying with § 135.163(f)(2) must also have the standby battery or alternate source of electric power listed in OpSpec D104. Additional maintenance tests or procedures may be required for items listed in OpSpec D104.

6. Action. Principal inspectors (PI) with oversight of certificate holders that use or want to add legacy Pilatus airplanes to their operations should review this notice; FAA Order 8900.1, Volume 4, Chapter 16, Section 1, Safety Assurance System: Guidance for Authorizing Single-Engine Aircraft IFR Passenger-Carrying Operations for a Part 135 Certificate Holder; and Order 8900.1 for the issuance or continued issuance of OpSpecs A046, D103, and D104. PIs should ensure certificate holders that use or want to add legacy Pilatus airplanes to their operations are aware of this notice and the related Information for Operators (InFO) on this topic.

7. Disposition. This notice is supportive of the information contained in Order 8900.1, Volume 4, Chapter 16, Section 1. Direct questions concerning the information in this notice to the Air Transportation Division's Part 135 Air Carrier Operations Branch (AFS-250) at 202-267-8166.



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