

[4910-13]



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## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 27

[Docket No. FAA-2020-1011; Notice No. 27-051-SC]

### **Special Conditions: AgustaWestland Philadelphia Corporation, Leonardo S.p.A. Model A119 and AW119 MKII Helicopters; Pressure Refueling and Fueling Provisions**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final special conditions.

**SUMMARY:** These special conditions are issued for the Leonardo S.p.A. (Leonardo) Model A119 and AW119 MKII helicopters. These helicopters as modified by AgustaWestland Philadelphia Corporation (AWPC) will have a novel or unusual design feature when compared to the state of technology envisioned in the airworthiness standards for helicopters. This design feature is the optional closed circuit refueling receiver (CCRR). 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:** Effective [INSERT DATE 30 DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER].

**FOR FURTHER INFORMATION CONTACT:** Rao Edupuganti, Dynamic Systems Section, AIR-627, Policy and Innovation Division, Aircraft Certification Service, 10101 Hillwood Parkway, Fort Worth, Texas 76177; telephone (817) 222-4389.

**SUPPLEMENTARY INFORMATION:**

## **Background**

On January 30, 2020, AWPC applied for a supplemental type certificate to install an optional CCRR in the Leonardo Model A119 and AW119 MKII helicopters. The general configuration and the principles of construction of these helicopters will not be changed by the modifications. These helicopters are 14 CFR part 27 normal category helicopters powered by turboshaft engines, with a 7-passenger maximum capacity and minimum crew of one pilot and a maximum weight of 5,997 lb (2,720 kg) and 6,283 lb (2,850 kg), respectively. The total useable fuel capacity of the Leonardo Model A119 and AW119 MKII helicopters is 157.0 U.S. gallons distributed within the fuel tanks. Both helicopter models are powered by one Pratt & Whitney Canada Inc. PT6B-37A turboshaft engine.

Part 27 does not contain requirements for pressure refueling for normal category helicopters. Title 14 CFR 29.979, amendment 29-12, provides these requirements for transport category helicopters. Accordingly, these special conditions are based on § 29.979 to provide requirements for the inclusion of the optional CCRR on the Leonardo Model A119 and AW119 MKII helicopters.

## **Type Certification Basis**

Under the provisions of 14 CFR 21.101, AWPC must show that the Leonardo Model A119 and AW119 MKII helicopters, as changed, continue to meet the applicable provisions of the regulations listed in Type Certificate No. H7EU or the applicable regulations in effect on the date of application for the change. The regulations adopted by reference in the type certificate are commonly referred to as the “original type certification basis.” The certification basis also includes certain special conditions, exemptions, or later amended sections of the applicable part that are not relevant to these special conditions.

The Administrator has determined that the applicable airworthiness regulations do not contain adequate or appropriate safety standards for the Leonardo Model A119 and AW119

MKII helicopters because of a novel or unusual design feature. Therefore, 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.

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 Feature**

The Leonardo Model A119 and AW119 MKII helicopters will incorporate the following novel or unusual design feature: an optional CCRR system that allows for pressure refueling.

### **Discussion**

AWPC proposed to install an optional CCRR system that includes provisions for pressure refueling during ground operations with the engine running and the rotors turning. The design proposed by AWPC allows for both closed-circuit pressure and normal gravity refueling and fueling. In this design, the ground crew will be able to perform closed-circuit pressure refueling by pulling the receiver into place using the provided lanyard tool after the fuel filler cap is opened. When gravity fueling is desired, a latch is depressed using the same lanyard tool. Depressing the latch causes the receiver to swing open to accommodate any nozzle up to three inches in diameter. The CCRR system is currently certified on the Leonardo Model AW139 transport category helicopter. Relative to the Model AW139 installation, the Model A119 and AW119 MKII installations will be clocked 25 degrees counter-clockwise, and the receptacle flange will be offset approximately two inches outboard of the fuselage profile due to packaging constraints. The mechanical components and functional aspects of the Model A119 and AW119 MKII CCRR installations are unchanged from the previously certified AW139 installation.

The part 27 airworthiness regulations in the type certification basis do not contain appropriate safety standards for this design feature. However, part 29 regulations contain appropriate airworthiness standards; therefore, these special conditions are necessary. They are derived from 14 CFR 29.979, “Pressure refueling and fueling provisions below fuel level.”

Section 29.979, amendment 29-12, effective February 1, 1977, includes standards for pressure refueling and fueling provisions below fuel level on transport category helicopters. This regulation is intended to prevent hazards to ground crew, flight crew, and occupants by reducing the probability of exposure to hazardous quantities of fuel due to spillage. This regulation also ensures the pressure refueling/defueling system is designed to prevent overfilling the fuel tank and to withstand an ultimate load overpressure event without failure.

Section 29.979(a) requires that each fueling connection below the fuel level in each tank have means to prevent the escape of hazardous quantities of fuel from that tank in case of malfunction of the fuel entry valve. The only refueling connection on the Leonardo Model A119 and AW119 MKII helicopters is located above the fuel level of the single main upper, two main lower, and optional two auxiliary fuel tanks. As the proposed modification by AWPC does not move the existing refueling connection below the fuel line of any fuel tank, these special conditions do not include a requirement derived from 14 CFR 29.979(a).

Section 29.979(b) requires that systems intended for pressure refueling and fueling have a means in addition to the normal means for limiting the tank content to prevent damage to the tank in case of failure of the normal means.

Section 29.979(c) requires that the helicopter pressure fueling system (not fuel tanks and fuel tank vents) withstand an ultimate load that is 2.0 times the load arising from the maximum pressure, including surge, likely to occur during fueling. The maximum surge pressure must be established with any combination of tank valves being either intentionally or inadvertently closed.

Section 29.979(d) requires that the helicopter defueling system (not including fuel tanks and fuel tank vents) withstand an ultimate load that is 2.0 times the load arising from the maximum permissible defueling pressure (positive or negative) at the helicopter's fueling connection. As the design proposed by AWPC does not include a defueling capability, these special conditions do not include a requirement derived from 14 CFR 29.979(d).

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.

### **Discussion of Comments**

The FAA issued Notice of Proposed Special Conditions No. 27-051-SC for the Leonardo Model A119 and AW119 MKII helicopters, which was published in the *Federal Register* on November 2, 2020 (85 FR 69265). No comments were received, and the special conditions are adopted as proposed.

### **Applicability**

As discussed above, these special conditions are applicable to Leonardo Model A119 and AW119 MKII helicopters. Should AWPC apply at a later date for a supplemental type certificate to modify any other model included on Type Certificate No. H7EU to incorporate the same novel or unusual design feature, these special conditions would apply to that model as well.

### **Conclusion**

This action affects only one novel or unusual design feature on the Leonardo Model A119 and AW119 MKII helicopters. It is not a rule of general applicability and affects only the applicant who applied to the FAA for approval of this feature on these helicopters.

### **List of Subjects in 14 CFR Part 27**

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 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 Leonardo S.p.A. Model A119 and AW119 MKII helicopters, as modified by AgustaWestland Philadelphia Corporation.

The pressure refueling system must be designed and installed as follows:

(a) For systems intended for pressure refueling, a means in addition to the normal means for limiting the tank content must be installed to prevent damage to the fuel tank in case of failure of the normal means.

(b) The helicopter pressure fueling system (not fuel tanks and fuel tank vents) must withstand an ultimate load that is 2.0 times the load arising from maximum pressure, including surge, that is likely to occur during fueling. The maximum surge pressure must be established with any combination of tank valves being either intentionally or inadvertently closed.

Issued in Fort Worth, Texas on December 11, 2020.

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Policy & Innovation Division  
Aircraft Certification Service  
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