Dated: August 18, 2021.

Laura Galban,

Federal Register Liaison, Bureau of Consumer Financial Protection.

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. FAA–2020–0893; Special Conditions No. 25–790–SC]

Special Conditions: Pro Star Aviation LLC, Bombardier Model CL–600–2B16 Airplanes; Installation of an Infrared Laser Countermeasure System

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions.

SUMMARY: These special conditions are issued for the Bombardier Model CL–600–2B16 (Bombardier) airplane. This airplane, as modified by Pro Star Aviation LLC (Pro Star Aviation), will have a 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 system that emits infrared laser energy outside the aircraft as a countermeasure against heat-seeking missiles. 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 September 22, 2021.

FOR FURTHER INFORMATION CONTACT: Eric Peterson, Safety Risk Management Section, AIR–633, Policy and Innovation Division, Aircraft Certification Service, Federal Aviation Administration, 2200 South 216th Street, Des Moines, Washington 98198; telephone and fax 206–231–3413; email *Eric.M.Peterson@faa.gov.*

SUPPLEMENTARY INFORMATION:

Background

On December 7, 2018, Pro Star Aviation applied for a supplemental type certificate to install a ''Large Aircraft Infrared Countermeasure (LAIRCM)'' system, which directs infrared laser energy toward heat-seeking missiles, on the Bombardier Model CL–600–2B16 airplane. This airplane, which is a derivative of the Bombardier Model CL–600 series airplanes currently approved under Type Certificate No. A21EA, is a twin-engine business jet with seating for 20 passengers and two crewmembers, and a maximum takeoff weight of 47,600 pounds.

Type Certification Basis

Under the provisions of title 14, Code of Federal Regulations (14 CFR) 21.101, Pro Star Aviation must show that the Bombardier Model CL–600–2B16 airplane, as changed, continues to meet the applicable provisions of the regulations listed in Type Certificate No. A21EA, 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 (*e.g.,* 14 CFR part 25) do not contain adequate or appropriate safety standards for the Bombardier Model CL–600–2B16 airplane 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 CL–600–2B16 airplane 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 CL–600–2B16 airplane, as modified by Pro Star Aviation, will incorporate the following novel or unusual design feature:

A system that emits infrared laser energy outside the aircraft.

Discussion

In recent years, in several incidents abroad, civilian aircraft were fired upon by man-portable air defense systems (MANPADS). This has led several companies to design and adapt systems like LAIRCM for installation on civilian aircraft, to protect those aircraft against heat-seeking missiles. Pro Star Aviation's LAIRCM system directs infrared laser energy toward an incoming missile, in an effort to interrupt the missile's tracking of the aircraft's heat.

Infrared laser energy can pose a hazard to persons on the aircraft, on the ground, and on other aircraft. The risk is heightened because infrared light is invisible to the human eye. Human exposure to infrared laser energy can result in eye and skin damage, and affect a flight crew's ability to control the aircraft. Infrared laser energy can also affect other aircraft, whether airborne or on the ground, and property, such as fuel trucks and airport equipment, in a manner that adversely affects aviation safety.

FAA design standards for transport category airplanes did not envisage that a design feature could project infrared laser energy outside the airplane. The FAA's design standards are inadequate to address this capability. Therefore, this system is a novel or unusual design feature, and the FAA has developed these special conditions to establish a level of safety equivalent to that of the regulations.

Special conditions are also warranted, per 14 CFR 21.16, because FAA design standards are inappropriate for this design feature. 14 CFR 25.1301 requires installed equipment to be of a design that is appropriate for its intended function. The FAA has no basis to determine whether this LAIRCM system will successfully perform its intended function of thwarting heat-seeking missiles.

Ground Activation. Condition 1 requires the design to have means to prevent inadvertent operation of the system while the airplane is on the ground, including during maintenance. These means must identify and address all foreseeable failure modes that may result in inadvertent operation. These modes include errors in airplane maintenance and operating procedures, such as erroneously setting the system to ''air'' mode while the airplane is on the ground. The applicant could show such failure modes, their risks, and how they will be addressed, by conducting safety assessments and incorporating prevention strategies into the design.

In-Flight Activation. Condition 2 requires that the system be designed so that in-flight operation does not result in damage to the airplane or to other aircraft, or injury to any person. To account for these effects, the applicant's analysis should include effects from the system's erroneous operation, from system failures, and from failures that may not be readily detectable prior to

flight (*i.e.,* latent failures). The applicant may address this condition through safety assessments and incorporation of prevention strategies into its design. The ''operation'' addressed by Condition 2 includes all operation of the system, whether intentional, inadvertent, or automatic.

Markings, instructions, and other information. Conditions 3, 4, and 5 are intended to protect certain categories of persons based upon their expected interaction with the system. These conditions require the design to supply certain safety information to these persons.

Condition 3 requires the design to provide pertinent laser-safety information to maintenance and service personnel at the location of the installation. At a minimum, such ''pertinent'' information will include information about potential hazards to persons who are using optical magnification devices, such as magnifying glasses or binoculars. The warning information should be consistent with the laser's classification in 21 CFR 1040.

Condition 4 requires the airplane instructions for continued airworthiness to contain the appropriate warnings related to the laser's classification. Like the warning information to be provided at the location of the laser system's installation, the purpose of this condition is to ensure any person maintaining the system is aware of the hazards, including those related to the use of magnifying glasses or binoculars.

Condition 5 requires the applicant to update the airplane operating limitations and information required under 14 CFR 25.1581. The airplane flight-manual supplement insert must describe the intended function of the LAIRCM system, its intended operation, and the phases of flight in which it may be used. The insert also must add a caution that describes the significant risk of injury the LAIRCM system poses to others while in proximity to other aircraft, airports, and populated areas.

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.

These special conditions, and the corresponding supplemental type certificate for the installation of this system, do not constitute approval to operate the system. FAA Advisory Circular 70–1, ''Outdoor Laser Operations,'' provides guidance on obtaining operational approval.

Discussion of Comments

The FAA issued Notice of Proposed Special Conditions No. 25–21–02–SC for the Bombardier Model CL–600–2B16 airplane, as modified by Pro Star Aviation, which was published in the **Federal Register** on June 24, 2021 (86 FR 33147). The FAA received one comment supporting the proposed special conditions as they apply to the installation of a LAIRCM system ''. . . on the specific model of aircraft.''

Applicability

As discussed above, these special conditions are applicable to the Bombardier Model CL–600–2B16 airplane with the Pro Star Aviation LAIRCM system installed. Should Pro Star Aviation apply at a later date for a supplemental type certificate to modify any other model included on Type Certificate No. A21EA to incorporate 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 of airplane. It is not a rule of general applicability and affects only the applicant.

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 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 the Bombardier Model CL–600–2B16 airplane with the LAIRCM system, as modified by Pro Star Aviation.

1. The system must have means that prevent the inadvertent activation of the system on the ground, including during airplane maintenance and ground handling. Such means must address all foreseeable failure modes and operating and maintenance errors.

2. The system must be designed so that its operation in-flight does not result in damage to the airplane or other aircraft, or injury to any person. Operation of the system must not be capable of compromising continued safe flight and landing of other aircraft and the airplane on which it is installed, either by direct damage, laser-reflective damage, or through distraction or incapacitation of crew.

3. Laser-safety information for maintaining or servicing the airplane must be prominently placarded on the airplane or LAIRCM system at the location of the laser installation.

4. Instructions for continued airworthiness for installation, removal, and maintenance of the LAIRCM system must contain warnings appropriate to the laser classification concerning the hazards associated with exposure to laser radiation. This includes instructions regarding potential hazards to personnel who are using optical magnification devices such as magnifying glasses or binoculars.

5. The airplane flight manual supplement (AFMS) must describe the intended functions of the installed laser systems, to include identifying the intended operations and phases of flight. The AFMS must state:

CAUTION: The operation of the installed laser system could pose significant risk of injury to others while in proximity to other aircraft, airports, and populated areas.

Issued in Washington, DC, on August 17, 2021.

Erik Brown,

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

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA–2021–0373; Project Identifier MCAI–2020–01352–R; Amendment 39–21668; AD 2021–16–06]

RIN 2120–AA64

Airworthiness Directives; Leonardo S.p.a. Helicopters

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is superseding Airworthiness Directive (AD) 2020–19–11 for certain Leonardo S.p.a. Model A119 and AW119 MKII helicopters. AD 2020–19–11 required repetitive borescope inspections of the 90-degree tail rotor gearbox (TGB) and depending on the inspection results, removing the TGB from service. This AD was prompted by the determination that additional parts may be susceptible to the unsafe condition. This AD retains