a. An ATTCS failure or a combination of failures in the ATTCS during the critical time interval (Figure 2):

i. Must not prevent the insertion of the maximum approved go-around thrust or power, or must be shown to be a remote event.

ii. Must not result in a significant loss or reduction in thrust or power, or must be shown to be an extremely improbable event.

b. The concurrent existence of an ATTCS failure and an engine failure during the critical time interval must be shown to be extremely improbable.

c. All applicable performance requirements of 14 CFR part 25 must be met with an engine failure occurring at the most critical point during go-around with the ATTCS functioning.

d. The probability analysis must include consideration of ATTCS failure occurring after the time at which the flightcrew last verifies that the ATTCS is in a condition to operate until the beginning of the critical time interval.

e. The propulsive thrust obtained from the operating engine after failure of the critical engine during a go-around used to show compliance with the one-engine-inoperative climb requirements of § 25.121(d) may not be greater than the lesser of:

i. The actual propulsive thrust resulting from the initial setting of power or thrust controls with the ATTCS functioning; or

ii. 111% of the propulsive thrust resulting from the initial setting of power or thrust controls with the ATTCS failing to reset thrust or power and without any action by the flightcrew to reset thrust or power.

4. Thrust setting

a. The initial go-around thrust setting on each engine at the beginning of the go-around phase may not be less than any of the following:

i. That required to permit normal operation of all safety-related systems and equipment dependent upon engine thrust or power lever position; or

ii. That shown to be free of hazardous engine response characteristics and not to result in any unsafe aircraft operating or handling characteristics when thrust or power is advanced from the initial go-around position to the maximum approved power setting.

b. For approval to use an ATTCS for go-arounds, the thrust setting procedure must be the same for go-arounds initiated with all engines operating as for go-arounds initiated with one engine inoperative.

5. Powerplant controls

a. In addition to the requirements of § 25.1141, no single failure or malfunction, or probable combination thereof, of the ATTCS, including associated systems, may cause the failure of any powerplant function necessary for safety.

b. The ATTCS must be designed to:

i. Apply thrust or power on the operating engine(s), following any one-engine failure during a go-around, to achieve the maximum approved go-around thrust without exceeding the engine operating limits;

ii. Permit manual decrease or increase in thrust or power up to the maximum go-around thrust approved for the airplane under the existing conditions through the use of the power lever. For airplanes equipped with limiters that automatically prevent the engine operating limits from being exceeded under existing ambient conditions, other means may be used to increase the thrust in the event of an ATTCS failure, provided that the means:

1. Is located on or forward of the power levers;

2. Is easily identified and operated under all operating conditions by a single action of either pilot with the hand that is normally used to actuate the power levers; and

3. Meets the requirements of § 25.777(a), (b), and (c).

iii. Provide a means to verify to the flightcrew before beginning an approach for landing that the ATTCS is in a condition to operate (unless it can be demonstrated that an ATTCS failure combined with an engine failure during an entire flight is extremely improbable); and

iv. Provide a means for the flightcrew to deactivate the automatic function. This means must be designed to prevent inadvertent deactivation.

6. Powerplant instruments: In addition to the requirements of § 25.1305:

a. A means must be provided to indicate when the ATTCS is in the armed or ready condition; and

b. If the inherent flight characteristics of the airplane do not provide adequate warning that an engine has failed, a warning system that is independent of the ATTCS must be provided to give the pilot a clear warning of any engine failure during a go-around.

Issued in Renton, Washington, on April 8, 2016.

Michael Kaszycki,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 2016–09333 Filed 4–21–16; 8:45 am]

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. FAA–2015–7301; Special Conditions No. 25–614–SC]

Special Conditions: Gulfstream Aerospace Corporation Model GVII–G500 Airplanes, Pilot Compartment View Requirements With an Enhanced Flight Vision System

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions; request for comments.

SUMMARY: These special conditions are issued for the Gulfstream Aerospace Corporation (Gulfstream) Model GVII–G500 airplane. This airplane 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 an enhanced flight vision system (EFVS) that includes a head-up display (HUD) capable of displaying forward-looking infrared (FLIR) imagery, intended to be used for instrument approaches under provisions of Title 14, Code of Federal Regulations (14 CFR) 91.175(l) and (m). 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: This action is effective on Gulfstream Aerospace Corporation on April 22, 2016. We must receive your comments by June 6, 2016.

ADDRESSES: Send comments identified by docket number FAA–2015–7301 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 Web site, 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), as well as at *http://DocketsInfo.dot.gov/.*

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: Dale Dunford, FAA, Airplane and Flightcrew Interface Branch, ANM–111, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington 98057–3356; telephone 425–227–2239; facsimile 425–227–1320.

SUPPLEMENTARY INFORMATION: The FAA has determined that notice of, and opportunity for prior public comment on, these special conditions is impracticable because these procedures would significantly delay issuance of the design approval and thus delivery of the affected airplane.

In addition, the substance of these special conditions has been subject to the public comment process in several prior instances with no substantive comments received. The FAA therefore finds that good cause exists for making these special conditions effective upon publication in the **Federal Register**.

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 March 29, 2012, Gulfstream Aerospace Corporation applied for a type certificate for their new Model GVII–G500 series airplane. The Model GVII–G500 series airplane will be a business jet capable of accommodating up to 19 passengers. It will incorporate a low, swept-wing design with winglets and a T-tail. The powerplant will consist of two aft-fuselage-mounted Pratt & Whitney turbofan engines.

Type Certification Basis

Under the provisions of Title 14, Code of Federal Regulations (14 CFR) 21.17, Gulfstream must show that the Model GVII–G500 series airplane meets the applicable provisions of 14 CFR part 25, as amended by Amendments 25–1 through 25–129.

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 Model GVII–G500 series 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 type certificate for that model be amended later to include any other model that incorporates the same or similar novel or unusual design feature, the special conditions would also apply to the other model under § 21.101.

In addition to the applicable airworthiness regulations and special conditions, the Model GVII–G500 series 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 must issue a finding of regulatory adequacy under § 611 of Public Law 92–574, the ''Noise Control Act of 1972.''

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 § 21.17(a)(2).

Novel or Unusual Design Features

The Gulfstream Model GVII–G500 airplane will incorporate the following novel or unusual design feature:

An enhanced flight vision system (EFVS) that includes a head-up display (HUD) capable of displaying forward-looking infrared (FLIR) imagery, intended to be used for instrument approaches under provisions of § 91.175(l) and (m).

Discussion

The EFVS uses novel technology for which the FAA has no certification criteria. Furthermore, 14 CFR 25.773, which was not written in anticipation of such technology, does not permit visual distortions and reflections that could interfere with the pilot's compartment view. The video image potentially interferes with the pilot's ability to see the natural scene in the center of their forward field of view. Because § 25.773 does not provide for alternatives or considerations for such a novel system, it is necessary to establish safety requirements that assure an equivalent level of safety and effectiveness of the pilot compartment view as intended by this rule. These special conditions for the EFVS are prescribed under the provisions of § 21.16. Other applications for certification of such technology are anticipated in the near future, and magnify the need to establish FAA safety standards that can be applied consistently for all such approvals.

Unlike the pilot's natural forward vision, the EFVS image is infrared-based, monochrome, 2-dimensional (*i.e.,* providing no depth perception), and of lower resolution. While the pilot may be readily able to see around and through small individual stroke-written symbols on the HUD, the pilot may not be able to see around or through the image that fills the display without some interference of the outside view. Nevertheless, the EFVS may be capable of meeting an equivalent level of safety when considering the combined view of the image and the outside scene, which is visible to the pilot through the image. It is essential that the pilot be able to use this combination of image and natural view of the outside scene as safely and effectively as the pilot compartment view currently allows without the EFVS image.

These special conditions provide the unique pilot-compartment view requirements for the EFVS installation.

Compliance with these special conditions is required for the EFVS to be found acceptable, for the following intended functions, in accordance with § 91.175(l) and (m):

1. Presenting an image that would aid the pilot during a straight-in instrument approach.

2. Enable the pilot to determine the ''enhanced flight visibility,'' as required by § 91.175(l)(2), for descent and operation below M_{DA}/D_H.

3. Enable the pilot to use the EFVS imagery to detect and identify the ''visual references for the intended runway,'' required by § 91.175(l)(3), to continue the approach with vertical

guidance to 100 feet height above touchdown-zone elevation.

Note: The term ''Enhanced Vision System,'' or EVS, commonly refers to a system comprising a HUD, imaging sensor(s), and avionics interface(s) that displays the sensor imagery on the HUD and overlays it with alpha-numeric and symbolic flight information. However, the term has also been used to refer to systems that display the sensor imagery, with or without other flight information, on a head-down display. Therefore, to avoid confusion, the FAA has defined the term ''Enhanced Flight Vision System'' (EFVS) to refer to certain EVS that meet the requirements of § 91.175(m), in particular the requirement for a HUD and specified flight information, and the ability to determine ''enhanced flight visibility.'' Accordingly, an EFVS can be considered a subset of systems otherwise labeled EVS.

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 Gulfstream Model GVII–G500 airplane. Should Gulfstream apply at a later date for a change to the type certificate to include another model incorporating 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 series of airplane. It is not a rule of general applicability.

The substance of these special conditions has been subjected to the notice and comment period in several prior instances and has been derived without substantive change from those previously issued. It is unlikely that prior public comment would result in a significant change from the substance contained herein. Therefore, because a delay would significantly affect the certification of the airplane, the FAA has determined that prior public notice and comment are unnecessary and impracticable, and good cause exists for adopting these special conditions upon publication in the **Federal Register**.

The FAA is requesting comments to allow interested persons to submit views that may not have been submitted in response to the prior opportunities for comment described above.

List of Subjects in 14 CFR Part 25

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 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 Gulfstream Model GVII–G500 airplanes.

1. Enhanced flight vision system (EFVS) imagery on the head-up display (HUD) must not degrade the safety of flight or interfere with the effective use of outside visual references for required pilot tasks during any phase of flight in which it is to be used.

2. To avoid unacceptable interference with the safe and effective use of the pilot-compartment view, the EFVS device must meet the following requirements:

a. EFVS design must minimize unacceptable display characteristics or artifacts (*e.g.* noise, ''burlap'' overlay, running water droplets) that obscure the desired image of the scene, impair the pilot's ability to detect and identify visual references, mask flight hazards, distract the pilot, or otherwise degrade task performance or safety.

b. Control of EFVS display brightness must be sufficiently effective, in dynamically changing background (ambient) lighting conditions, to prevent full or partial blooming of the display that would distract the pilot, impair the pilot's ability to detect and identify visual references, mask flight hazards, or otherwise degrade task performance or safety. If automatic control for image brightness is not provided, it must be shown that a single manual setting is satisfactory for the range of lighting conditions encountered during a time-critical, high-workload phase of flight (*e.g.,* low-visibility instrument approach).

c. A readily accessible control must be provided that permits the pilot to immediately deactivate and reactivate display of the EFVS image on demand, without removing the pilot's hands from the primary flight controls (yoke or equivalent) or thrust control.

d. The EFVS image on the HUD must not impair the pilot's use of guidance information, or degrade the presentation and pilot awareness of essential flight information displayed on the HUD, such as alerts, airspeed, attitude, altitude and direction, approach guidance, wind-shear guidance, traffic collision avoidance system (TCAS) resolution advisories, and unusual-attitude recovery cues.

e. The EFVS image and the HUD symbols, which are spatially referenced to the pitch scale, outside view, and image, must be scaled and aligned (*i.e.,* conformal) to the external scene and, when considered singly or in combination, must not be misleading, cause pilot confusion, or increase workload. There may be airplane attitudes or cross-wind conditions which cause certain symbols, such as the zero-pitch line or flight-path vector, to reach field-of-view limits such that they cannot be positioned conformably with the image and external scene. In such cases, these symbols may be displayed, but with an altered appearance which makes the pilot aware that they are no longer displayed conformably (for example, ''ghosting'').

f. A HUD system used to display EFVS images must, if previously certified, continue to meet all of the requirements of the original approval.

3. The safety and performance of the pilot tasks associated with the use of the pilot-compartment view must be not be degraded by the display of the EFVS image. Pilot tasks which must not be degraded by the EFVS image include:

a. Detection, accurate identification, and maneuvering, as necessary, to avoid traffic, terrain, obstacles, and other hazards of flight.

b. Accurate identification and utilization of visual references required for every task relevant to the phase of flight.

4. Appropriate limitations must be stated in the Operating Limitations section of the Airplane Flight Manual to prohibit the use of the EFVS for functions that have not been found to be acceptable.

Issued in Renton, Washington, on April 5, 2016.

Michael Kaszycki,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 2016–09334 Filed 4–21–16; 8:45 am]

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