



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2023-0659; Project Identifier AD-2022-01404-T; Amendment 39-22508; AD 2023-14-08]

RIN 2120-AA64

Airworthiness Directives; Gulfstream Aerospace Corporation Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for certain Gulfstream Aerospace Corporation Model GVII-G600 airplanes. This AD was prompted by an addition of a life limit in the Airworthiness Limitations Section (ALS) for GVII-G600 flap yokes. The life limit for the GVII-G600 flap yokes was informed by a GVII-G500 flap yoke failure that occurred during flight testing and, ultimately, resulted in additional test and analysis to establish more accurate life limits reflective of each model's design features and stress levels. The FAA is issuing this AD to require revising the existing ALS to prevent the GVII-G600 inboard flap yoke from remaining in service beyond its life limit. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES:

AD Docket: You may examine the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2023-0659; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule,

any comments received, and other information. The address for Docket Operations is U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT: Jeffrey Johnson, Aviation Safety Engineer, FAA, 1701 Columbia Avenue, College Park, GA 30337; phone: 404-474-5554; email: 9-ASO-ATLACO-ADs@faa.gov.

SUPPLEMENTARY INFORMATION:

Background

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain Gulfstream Aerospace Corporation Model GVII-G600 airplanes. The NPRM published in the *Federal Register* on April 6, 2023 (88 FR 20436). The NPRM was prompted by an addition of a life limit in the ALS for GVII-G600 inboard flap actuator yoke fittings. Gulfstream revised the ALS to establish a life limit of 4,000 flight cycles. The FAA is issuing this AD to address decreased fatigue life of GVII-G600 inboard flap actuator yoke fittings and to prevent the GVII-G600 flap yoke from remaining in service beyond its life limit. An inboard flap actuator yoke fitting remaining in service beyond its life limit could result in the flaps being jammed in position, if fracture occurred. Additional failures in the flap actuator force limiter, or flap yoke actuator disconnect, could result in asymmetric flap positions leading to a loss of control of the airplane.

Discussion of Final Airworthiness Directive

Comments

The FAA received comments from Gulfstream Aerospace Corporation. The following presents the comments received on the NPRM and the FAA's response to each comment.

Request to Clarify the Summary Section

Gulfstream Aerospace Corporation states the summary statement does not accurately describe the condition or reason for this AD as the flap yoke fittings installed on GVII-G500 are not installed on any GVII-G600 aircraft. Gulfstream has added a limitation to the GVII-G600 ALS based on a reevaluation of the damage tolerance analysis considering the GVII-G500 flap yoke fitting failure. The shaft diameters on both the inboard and outboard GVII-G600 flap yoke fittings are larger than the corresponding GVII-G500 configurations, and the operational stresses are lower.

The FAA agrees with adopting Gulfstream's recommended language for the Summary with two exceptions. The FAA will continue to reference the unsafe condition because it follows previous NPRM language for ALS revisions when establishing life limits. The FAA will also continue to reference the GVII-G500 failure as the life limit for the GVII-G600 flap yokes was informed by the GVII-G500 flap yoke failure that occurred during flight testing and resulted in additional test and analysis to establish more accurate life limits reflective of each model's design features and stress levels.

Request to Clarify the Background Section

Gulfstream Aerospace Corporation states there is no design flaw on the GVII-G600 flap yoke. The flap yoke fittings installed on GVII-G500 have a different design. A damage tolerance analysis was performed on the GVII-G600 inboard yoke fittings and determined that a life limit was necessary to protect the integrity of the flap actuation system. Gulfstream has requested the Background be changed to clarify this section.

The FAA agrees with Gulfstream and has revised the Background section accordingly. While the GVII-G600 does have design features known to reduce fatigue life, the use of the term 'design flaw' should not be applied to the GVII-G600 flap yoke fittings.

Request to Clarify Paragraph (e) Unsafe Condition

Gulfstream Aerospace Corporation states the GVII-G600 design is much more robust than the GVII-G500 design, and there is no design flaw with the GVII-G600 flap yoke. Through analysis, Gulfstream determined a life limit was needed to address all threats required under 14 CFR 25.571(a) and (b), including fatigue, corrosion, and accidental damage. Gulfstream acknowledges this AD is necessary to notify operators of a revision to the G600 ALS to incorporate life limits for the inboard flap actuator yoke fittings. Gulfstream requested a change to the unsafe paragraph to clarify the reason for this AD.

The FAA agrees to revise the language in paragraph (e) to remove reference to the GVII-G500 investigation as a need to establish a life limit. While the GVII-G500 flap yoke fitting failure incident did inform the fatigue effects, the FAA understands the GVII-G600 has unique design features and operating stress levels. The FAA disagrees with removal of the reference to the term “unsafe condition” from this section since all ADs are issued to address unsafe conditions in accordance with 14 CFR 39.5.

Conclusion

The FAA reviewed the relevant data, considered any comments received, and determined that air safety requires adopting this AD as proposed. Accordingly, the FAA is issuing this AD to address the unsafe condition on these products. Except for minor editorial changes, and any other changes described previously, this AD is adopted as proposed in the NPRM. None of the changes will increase the economic burden on any operator.

Costs of Compliance

The FAA estimates that this AD affects 41 airplanes of U.S. registry. The FAA estimates the following costs to comply with this AD:

Estimated costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Revise ALS	1 work-hour X \$85 per hour = \$85	N/A	\$85	\$3,485

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a "significant regulatory action" under Executive Order 12866,
- (2) Will not affect intrastate aviation in Alaska, and
- (3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive:

2023-14-08 Gulfstream Aerospace Corporation: Amendment 39-22508; Docket No. FAA-2023-0659; Project Identifier AD-2022-01404-T.

(a) Effective Date

This airworthiness directive (AD) is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to Gulfstream Aerospace Corporation Model GVII-G600 airplanes, certificated in any category, serial numbers 73001 through 73051 inclusive.

(d) Subject

Air Transport Association (ATA) of America Code 27, Flight Controls.

(e) Unsafe Condition

This AD was prompted by an addition of a life limit in the Airworthiness Limitations Section (ALS) for GVII-G600 inboard flap actuator yoke fittings. The FAA is issuing this AD to address decreased fatigue life of GVII-G600 inboard flap actuator yoke fittings and to prevent the GVII-G600 flap yoke from remaining in service beyond

its life limit. The unsafe condition, if not addressed, could result in the flaps being jammed in position, if fracture occurred. Additional failures in the flap actuator force limiter, or flap yoke actuator disconnect, could result in asymmetric flap positions leading to a loss of control of the airplane.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Incorporation of ALS Revisions

Within 30 days after the effective date of this AD, revise the existing ALS of the Instructions for Continued Airworthiness (ICA) or inspection program for your airplane by establishing a life limit of 4,000 flight cycles for the left-hand part number (P/N) 73P5755033M005 and right-hand P/N 73P5755033M006 inboard flap yoke fittings.

Note 1 to paragraph (g): The life limit in paragraph (g) of this AD is contained in table 2 in Section 05-10-10 of Gulfstream GVII-G600 Aircraft Maintenance Manual, Revision 9, dated November 15, 2022.

(h) Alternative Methods of Compliance (AMOCs)

(1) The Manager, East Certification Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or responsible Flight Standards Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (i)(1) of this AD.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the responsible Flight Standards Office.

(i) Related Information

(1) For more information about this AD, contact Jeffrey Johnson, Aviation Safety Engineer, FAA, 1701 Columbia Avenue, College Park, GA 30337; phone: 404-474-5554; email: 9-ASO-ATLACO-ADs@faa.gov.

(2) For Gulfstream service information identified in this AD that is not incorporated by reference, contact Gulfstream Aerospace Corporation, Technical Publications Dept., P.O. Box 2206, Savannah, GA 31402-2206; telephone 800-810-4853; email pubs@gulfstream.com; website gulfstream.com/en/customer-support/. You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195.

(j) Material Incorporated by Reference

None.

Issued on July 13, 2023.

Victor Wicklund, Deputy Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.

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