

Issued in Renton, Washington, on February 27, 1997.

Darrell M. Pederson,  
*Acting Manager, Transport Airplane  
Directorate, Aircraft Certification Service.*

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#### 14 CFR Part 39

[Docket No. 97-NM-15-AD]

RIN 2120-AA64

#### **Airworthiness Directives; Gulfstream Aerospace Corporation Model G-159 (G-I) Airplanes**

**AGENCY:** Federal Aviation Administration, DOT.

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** This document proposes the superseding of an existing airworthiness directive (AD), applicable to certain Gulfstream Model G-159 (G-I) airplanes, that currently requires repetitive inspections to detect cracking in the mounting lugs of the elevator trim tab actuators, and replacement, if necessary. This action would require the installation of improved elevator trim tab actuators that are not susceptible to the subject cracking. This proposal is prompted by the development of a modification that positively addresses the identified unsafe condition. The actions specified by the proposed AD are intended to prevent failure of the mounting lugs on the elevator trim tab actuator due to cracking; such failure could result in severe vibration during flight and/or reduction or loss of elevator trim tab capability, which could lead to reduced controllability of the airplane.

**DATES:** Comments must be received by April 14, 1997.

**ADDRESSES:** Submit comments in triplicate to the Federal Aviation Administration (FAA), Transport Airplane Directorate, ANM-103, Attention: Rules Docket No. 97-NM-15-AD, 1601 Lind Avenue, SW., Renton, Washington 98055-4056. Comments may be inspected at this location between 9:00 a.m. and 3:00 p.m., Monday through Friday, except Federal holidays.

The service information referenced in the proposed rule may be obtained from Gulfstream Aerospace Corporation, Technical Operations Department, P.O. Box 2206, M/S D-10, Savannah, Georgia 31402-2206. This information may be examined at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington.

**FOR FURTHER INFORMATION CONTACT:** Christina Marsh, Aerospace Engineer,

Airframe and Propulsion Branch, ACE-117A, FAA, Small Airplane Directorate, Atlanta Aircraft Certification Office, Campus Building, 1701 Columbia Avenue, Suite 2-160, College Park, Georgia 30337-2748; telephone (404) 305-7362; fax (404) 305-7348.

#### **SUPPLEMENTARY INFORMATION:**

##### **Comments Invited**

Interested persons are invited to participate in the making of the proposed rule by submitting such written data, views, or arguments as they may desire. Communications shall identify the Rules Docket number and be submitted in triplicate to the address specified above. All communications received on or before the closing date for comments, specified above, will be considered before taking action on the proposed rule. The proposals contained in this notice may be changed in light of the comments received.

Comments are specifically invited on the overall regulatory, economic, environmental, and energy aspects of the proposed rule. All comments submitted will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested persons. A report summarizing each FAA-public contact concerned with the substance of this proposal will be filed in the Rules Docket.

Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this notice must submit a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket Number 97-NM-15-AD." The postcard will be date stamped and returned to the commenter.

##### **Availability of NPRMs**

Any person may obtain a copy of this NPRM by submitting a request to the FAA, Transport Airplane Directorate, ANM-103, Attention: Rules Docket No. 97-NM-15-AD, 1601 Lind Avenue, SW., Renton, Washington 98055-4056.

##### **Discussion**

In 1972, the FAA issued AD 72-24-04, amendment 39-1559 (37 FR 24419, November 17, 1972), applicable to certain Gulfstream Model G-159<sup>1</sup> airplanes (formerly designated as "Grumman Gulfstream G-159" airplanes), to require:

1. repetitive dye penetrant inspections to detect cracking in the mounting lugs of the elevator trim tab actuator, part number (P/N) 159SCC100-1 and -5; and
2. shimming to correct any out-of-plane mounting.

If cracking is detected during any inspection, the AD requires that the

actuator be replaced with an actuator having P/N 159SCC100-1, -5, or -11. (AD 72-24-04 specifies that, if an actuator having P/N 159SCC100-11 is installed, no further action is required.)

That action was prompted by a report indicating that, during an inspection, all four mounting lugs on a Gulfstream G-159 elevator trim tab actuator were found to be cracked. Examination of the actuator unit indicated that two of the lugs had been failed for an undetermined period of time. Additional inspections of other airplanes revealed numerous fittings with one lug failed and some with two lugs failed.

Once one lug fails, the adjacent lug is under twice the normal stress, and will eventually fail. At that point, the remaining two lugs are being worked in bending and their remaining service life, in this condition, is short.

The requirements of that AD are intended to detect cracked lugs as early as possible so as to prevent the concurrent failure of the four lugs. Such failure could cause severe vibration during flight and/or reduction or loss of elevator trim tab capability; this could then result in reduced controllability of the airplane.

##### **Actions Since Issuance of Previous Rule**

As part of its on-going program to address issues relevant to the continued operational safety of the aging transport fleet, the FAA, along with Gulfstream Aerospace Corporation and several U.S. and non-U.S. operators of the affected airplanes, agreed to undertake the task of identifying and implementing procedures to ensure the continuing structural airworthiness of aging commuter-class airplanes. This group reviewed selected customer bulletins and aircraft service changes, applicable to Gulfstream Model G-159 airplanes, to be recommended for mandatory rulemaking action to ensure the continued operational safety of these airplanes.

##### **Explanation of Relevant Service Information**

The group reviewed and recommended Grumman Gulfstream I Aircraft Service Change No. 191, dated August 18, 1972, for mandatory rulemaking action. This service change describes procedures for replacing the elevator trim tab actuators having P/N 159SCC100-1 or -5, with actuators having P/N 159SCC100-11. The replacement actuators have new, increased strength housings, and are not susceptible to the type of cracking that

was previously found. Installation of these new actuators eliminates the need for the repetitive inspections for cracking.

The group recognized the fact that cracks in the existing elevator trim tab actuator housings are very difficult to identify, even with the dye penetrant, if they are small or have just started. Therefore, installation of the improved actuators will positively address the identified unsafe condition by eliminating the potential both for the cracking itself, as well as for cracks that are missed during an inspection.

#### Explanation of Requirements of Proposed Rule

Since an unsafe condition has been identified that is likely to exist or develop on other products of this same type design, the proposed AD would supersede AD 72-24-04. It would continue to require the repetitive dye penetrant inspections for cracks in the elevator trim tab actuator mounting lugs. However, it would also require the installation of improved actuators, which would constitute terminating action for the repetitive inspections. The installation would be required to be accomplished in accordance with the aircraft service change described previously.

#### FAA's Determination for the Need to Mandate the Installation

The FAA has determined that long term continued operational safety will be better assured by design changes to remove the source of the problem, rather than by repetitive inspections. Long term inspections may not be providing the degree of safety assurance necessary for the transport airplane fleet. This, coupled with a better understanding of the human factors associated with numerous continual inspections, has led the FAA to consider placing less emphasis on inspections and more emphasis on design improvements. The proposed installation requirement is in consonance with these considerations.

#### Cost Impact

There are approximately 146 Gulfstream Model G-159 airplanes of the affected design in the worldwide fleet. The FAA estimates that 72 airplanes of U.S. registry would be affected by this proposed AD.

The inspections that are currently required by AD 72-24-04 take approximately 2 work hours per airplane to accomplish, at an average labor rate of \$60 per work hour. Based on these figures, the cost impact of the currently required actions on U.S.

operators is estimated to be \$8,640, or \$120 per airplane, per inspection.

The new installation that is proposed in this AD action would take approximately 12 work hours per airplane to accomplish, at an average labor rate of \$60 per work hour. Required parts would cost approximately \$4,900 per airplane. Based on these figures, the cost impact of the proposed requirements of this AD on U.S. operators is estimated to be \$404,640, or \$5,620 per airplane.

The cost impact figures discussed above are based on assumptions that no operator has yet accomplished any of the current or proposed requirements of this AD action, and that no operator would accomplish those actions in the future if this AD were not adopted.

#### Regulatory Impact

The regulations proposed herein would not have substantial direct effects 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. Therefore, in accordance with Executive Order 12612, it is determined that this proposal would not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

For the reasons discussed above, I certify that this proposed regulation (1) is not a "significant regulatory action" under Executive Order 12866; (2) is not a "significant rule" under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) if promulgated, 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. A copy of the draft regulatory evaluation prepared for this action is contained in the Rules Docket. A copy of it may be obtained by contacting the Rules Docket at the location provided under the caption **ADDRESSES**.

#### List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Safety.

#### The Proposed Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration proposes to amend part 39 of the Federal Aviation Regulations (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. Section 39.13 is amended by removing amendment 39-1559 (37 FR 24419, November 17, 1972), and by adding a new airworthiness directive (AD), to read as follows:

Gulfstream Aerospace Corporation (previously Grumman): Docket 97-NM-15-AD. Supersedes AD 72-24-04, amendment 39-1559.

*Applicability:* Model G-159 (G-I) airplanes, on which elevator trim tab actuators having part number 159SCC100-11 are *not* installed; certificated in any category.

Note 1: This AD applies to each airplane identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For airplanes that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (e)(1) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

*Compliance:* Required as indicated, unless accomplished previously.

To prevent failure of the elevator trim tab mounting lugs due to cracking, which could result in severe vibration during flight and a consequent reduction or loss of elevator trim tab capability, accomplish the following:

(a) Within 10 hours time-in-service after November 24, 1972 (the effective date of AD 72-24-04, amendment 39-1559), perform an inspection to detect cracks in the mounting lugs of the elevator trim tab actuators, having part number (P/N) 159SCC100-1 or -5; and shim to correct any out-of-plane condition, in accordance with Gulfstream Customer Bulletin No. 208A through Amendment 2, dated April 21, 1972, and Operational Summary No. 72-5B, dated August 1972.

(b) If no crack is found in any mounting lug during the inspection required by paragraph (a) of this AD, repeat the inspection at intervals not to exceed 200 hours time-in-service.

(c) If any crack is found in a mounting lug when conducting any inspection required by paragraph (a) or (b) of this AD, prior to further flight, replace the elevator trim tab actuator with a new or serviceable actuator having P/N 159SCC100-1, -5, or -11.

(1) If an actuator having P/N 159SCC100-1 or -5 is used as the replacement unit, repeat the inspection for cracks specified in paragraph (a) of this AD thereafter at intervals not to exceed 200 hours time-in-service.

(2) If an actuator having P/N 159SCC100-11 is used as the replacement unit, no further inspection action is required for that unit in accordance with this AD.

(d) Within 1,000 hours time-in-service after the effective date of this AD, replace the

elevator trim tab actuators with actuators that have P/N 159SCC100-11, in accordance with Gulfstream Aircraft Service Change No.191, dated August 18, 1972. This installation constitutes terminating action for the inspections required by this AD.

(e)(1) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Atlanta Aircraft Certification Office (ACO), FAA, Small Airplane Directorate. Operators shall submit their requests through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Atlanta ACO.

(2) Alternative methods of compliance, approved previously in accordance with AD 72-24-02, amendment 39-1559, are approved as alternative methods of compliance with this AD.

Note 2: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Atlanta ACO.

(f) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be accomplished.

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Darrell M. Pederson,  
*Acting Manager, Transport Airplane  
Directorate, Aircraft Certification Service.*  
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#### 14 CFR Part 39

[Docket No. 96-CE-25-AD]

RIN 2120-AA64

#### **Airworthiness Directives; Pilatus Britten-Norman Ltd. (formerly Britten-Norman) BN-2A, BN-2B, and BN-2T Series Airplanes**

**AGENCY:** Federal Aviation Administration, DOT.

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** This document proposes to adopt a new airworthiness directive that would apply to Pilatus Britten-Norman Ltd. (Pilatus Britten-Norman) BN-2A, BN-2B, and BN-2T series airplanes. The proposed AD would require repetitively inspecting the junction of the torque link lug and upper case of the main landing gear (MLG) torque link assemblies for cracks, and replacing any MLG torque link assembly with a Modification A39 MLG torque link assembly, either immediately when cracks are found or after a certain period of time if cracks are not found. Replacing all MLG torque link assemblies with Modification A39 MLG

torque link assemblies would eliminate the need for the repetitive inspections. These proposed repetitive inspections are currently required by AD 86-07-02 for the BN-2A, BN-2B, and BN-2T series airplanes, as well as the BN2A MK. 111 series airplanes. There are no improved design parts for the BN2A MK. 111 series airplanes. The Federal Aviation Administration (FAA) is issuing in a separate action a proposed revision to AD 86-07-02 to retain the repetitive inspection and replacement (if cracked) requirements for the BN2A MK. 111 series airplanes. The actions specified in the proposed AD are intended to prevent failure of the main landing gear caused by cracks in the torque link area, which could lead to loss of control of the airplane during landing operations.

**DATES:** Comments must be received on or before May 12, 1997.

**ADDRESSES:** Submit comments on the proposal in triplicate to the FAA, Central Region, Office of the Assistant Chief Counsel, Attention: Rules Docket No. 96-CE-25-AD, Room 1558, 601 E. 12th Street, Kansas City, Missouri 64106. Comments may be inspected at this location between 8 a.m. and 4 p.m., Monday through Friday, holidays excepted.

Service information that applies to the proposed AD may be obtained from Pilatus Britten-Norman Limited, Bembridge, Isle of Wight, United Kingdom PO35 5PR; telephone 44-1983 872511; facsimile 44-1983 873246. This information also may be examined at the Rules Docket at the address above. **FOR FURTHER INFORMATION CONTACT:** Mr. Tom Rodriguez, Program Officer, Brussels Aircraft Certification Division, FAA, Europe, Africa, and Middle East Office, c/o American Embassy, B-1000 Brussels, Belgium; telephone (32 2) 508.2717; facsimile (32 2) 230.6899; or Mr. S.M. Nagarajan, Project Officer, Small Airplane Directorate, Airplane Certification Service, FAA, 1201 Walnut, Suite 900, Kansas City, Missouri 64106; telephone (816) 426-6932; facsimile (816) 426-2169.

#### **SUPPLEMENTARY INFORMATION:**

##### **Comments Invited**

Interested persons are invited to participate in the making of the proposed rule by submitting such written data, views, or arguments as they may desire. Communications should identify the Rules Docket number and be submitted in triplicate to the address specified above. All communications received on or before the closing date for comments, specified above, will be considered before taking

action on the proposed rule. The proposals contained in this notice may be changed in light of the comments received.

Comments are specifically invited on the overall regulatory, economic, environmental, and energy aspects of the proposed rule. All comments submitted will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested persons. A report that summarizes each FAA-public contact concerned with the substance of this proposal will be filed in the Rules Docket.

Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this notice must submit a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket No. 96-CE-25-AD." The postcard will be date stamped and returned to the commenter.

##### **Availability of NPRMs**

Any person may obtain a copy of this NPRM by submitting a request to the FAA, Central Region, Office of the Assistant Chief Counsel, Attention: Rules Docket No. 96-CE-25-AD, Room 1558, 601 E. 12th Street, Kansas City, Missouri 64106.

##### **Discussion**

The FAA has determined that reliance on critical repetitive inspections on aging commuter-class airplanes carries an unnecessary safety risk when a design change exists that could eliminate or, in certain instances, reduce the number of those critical inspections. In determining what inspections are critical, the FAA considers (1) the safety consequences if the known problem is not detected during the inspection; (2) the probability of the problem not being detected during the inspection; (3) whether the inspection area is difficult to access; and (4) the possibility of damage to an adjacent structure as a result of the problem.

These factors have led the FAA to establish an aging commuter-class aircraft policy that requires incorporating a known design change when it could replace a critical repetitive inspection. With this policy in mind, the FAA conducted a review of existing AD's that apply to Pilatus Britten-Norman BN-2A, BN-2B, BN-2T, and BN2A MK. 111 series airplanes. Assisting the FAA in this review were (1) Pilatus Britten-Norman; (2) the Regional Airlines Association (RAA); (3) the Civil Aviation Authority of the