

Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the FAA, Atlanta Aircraft Certification Office, Small Airplane Directorate, Campus Building, 1701 Columbia Avenue, Suite 2-160, College Park, Georgia; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

(f) This amendment becomes effective on April 2, 1997.

Issued in Renton, Washington, on February 19, 1997.

James V. Devany,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

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**14 CFR Part 39**

[Docket No. 97-CE-07-AD; Amendment 39-9947; AD 97-05-03]

RIN 2120-AA64

**Airworthiness Directives; AlliedSignal Avionics, Inc. Models GNS-XLS or GNS-XL Flight Management Systems**

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

**ACTION:** Final rule; request for comments.

**SUMMARY:** This amendment adopts a new airworthiness directive (AD) that applies to all owners/operators of aircraft equipped with AlliedSignal Avionics Inc. (AlliedSignal) Models GNS-XLS or GNS-XL global positioning systems (GPS) Flight Management Systems. This action requires inserting a limitation into the Airplane Flight Manual (AFM) or Flight Manual Supplement Limitations Section prohibiting the use of these AlliedSignal GPS units on previously published non-precision approaches. This action is prompted by recent reports of flight course deviations because of erroneous information provided by the GPS Flight Management System. The actions specified by this AD are intended to prevent deviation from an intended flight path during a non-precision approach to an airport.

**DATES:** Effective March 18, 1997.

Comments for inclusion in the Rules Docket must be received on or before April 18, 1997.

**ADDRESSES:** Submit comments in triplicate to the Federal Aviation Administration (FAA), Central Region, Office of the Assistant Chief Counsel, Attention: Rules Docket 97-CE-07-AD, Room 1558, 601 E. 12th Street, Kansas City, Missouri 64106.

**FOR FURTHER INFORMATION CONTACT:** Mr. Jose Flores, Aerospace Engineer, FAA, Wichita Aircraft Certification Office,

1801 Airport Road, Room 100, Mid-Continent Airport, Wichita, Kansas 67209; telephone (316) 946-4133, facsimile (316) 946-4407.

**SUPPLEMENTARY INFORMATION:**

**Discussion**

AlliedSignal recently notified the FAA that their global positioning system (GPS) Flight Management System Models GNS-XLS and GNS-XL are malfunctioning. The AlliedSignal Models GNS-XLS and GNS-XL are used to determine the flight course of an airplane for previously published non-precision approaches to an airport. The GPS flight management system is integrated into the software of the flight management system recorder (black box) in the airplane. These GNS-XLS and GNS-XL GPS can be installed on, but are not limited to the following airplanes:

Manufacturer	Models
British Aerospace, Ltd. (BAe).	146-100A and 146-200A.
Cessna Aircraft Corporation.	525, 550, and 560.
Dausault Aviation .....	Mystere-Falcon 20 and 50.
Avions Marcel Dassault .....	Falcon 10.
Gulfstream Aerospace .....	G-1159 (G-II) and G-1159A (G-III).
Raytheon Corporate Jets ...	Hawker 800.
Israel Aircraft Industries, Ltd.	1124.
Sabreliner Corporation .....	NA-65.
Learjet Inc .....	35.
Jetstream Aircraft Ltd .....	4101.

Problems arose with these GPS flight management systems units after an installation of a GNS-XLS unit for certification in a Cessna Model 550 airplane. During this flight certification, the AlliedSignal Model GNS-XLS GPS provided erroneous information to the Flight Management System which caused the airplane to deviate from the previously published non-precision approach. Further investigation with flight tests on other airplane models confirmed this software malfunction. The manufacturer conducted bench tests on these models, and was also successful in duplicating the deviation occurring within the GPS flight management software while it is used in a previously published non-precision approach situation. The tests also showed that this malfunction is only randomly occurring approximately 20 percent of the time.

**The FAA's Determination**

After examining the circumstances and reviewing all available information

related to the incidents described above, including the relevant service information, the FAA has determined that AD action should be taken to prevent deviation of an intended flight path during a non-precision approach to an airport.

**Explanation of the Provisions of the AD**

Since an unsafe condition has been identified that is likely to exist or develop in other AlliedSignal Models GNS-XLS and GNS-XL GPS Flight Management Systems of the same type design, this AD requires inserting the following limitation into the Operations Limitations Section of the AFM or Flight Manual Supplement:

**Operating Limitations**

The GNS-XL (or GNS-XLS) is not approved for non-precision approaches.

**Note**

The GNS-XL (or GNS-XLS) may generate misleading information during non-precision GPS or Overlay approaches due to software limitations.

The FAA and AlliedSignal are currently working together toward an approved revision to the software problem on these GPS Flight Management System units.

**Compliance Time of this AD**

The compliance time of this AD is in calendar time instead of hours time-in-service (TIS). The average daily usage of the affected airplanes will have different ranges throughout the fleets. For example, one owner may operate the airplane 5 hours TIS in one day, while another operator may operate the airplane 5 hours TIS in one week. In order to ensure that all of the owners/operators of the affected airplanes have the chance to insert the limitation into the operating limitations of their Airplane Flight Manual or Flight Manual Supplement within a reasonable amount of time, the FAA is setting a compliance time of within the next 5 days after the effective date of this AD.

**Determination of the Effective Date of the AD**

Since a situation exists (misleading flight course information to the pilot during non-precision approaches) that requires the immediate adoption of this regulation, it is found that notice and opportunity for public prior comment hereon are impracticable, and that good cause exists for making this amendment effective in less than 30 days.

**Comments Invited**

Although this action is in the form of a final rule that involves requirements

affecting immediate flight safety and, thus, was not preceded by notice and opportunity to comment, comments are invited on this rule. Interested persons are invited to comment on this 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 will be considered, and this rule may be amended in light of the comments received. Factual information that supports the commenter's ideas and suggestions is extremely helpful in evaluating the effectiveness of the AD action and determining whether additional rulemaking action would be needed.

Comments are specifically invited on the overall regulatory, economic, environmental, and energy aspects of the rule that might suggest a need to modify the 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 AD will be filed in the Rules Docket.

Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this rule must submit a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket No. 97-CE-07-AD." The postcard will be date stamped and returned to the commenter.

**Regulatory Impact**

The regulations adopted herein will 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 final rule does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

The FAA has determined that this regulation is an emergency regulation that must be issued immediately to correct an unsafe condition in aircraft, and is not a significant regulatory action under Executive Order 12866. It has been determined further that this action involves an emergency regulation under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979). If it is determined that this emergency regulation otherwise would be

significant under DOT Regulatory Policies and Procedures, a final regulatory evaluation will be prepared and placed in the Rules Docket (otherwise, an evaluation is not required). A copy of it, if filed, may be obtained from the Rules Docket.

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

Air transportation, Aircraft, Aviation safety, Safety.

**Adoption of the Amendment**

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends 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 USC 106(g), 40113, 44701.

**§ 39.13 [Amended]**

2. Section 39.13 is amended by adding a new airworthiness directive (AD) to read as follows:

97-05-03 ALLIEDSIGNAL AVIONICS INC.: Amendment 39-9947; Docket No. 97-CE-07-AD.

*Applicability:* Models GNS-XLS and GNS-XL global positioning systems, part numbers (P/N) 17960-0102-XXXX and P/N 18355-0101-XXXX respectively, installed on, but not limited to the following airplanes, certificated in any category.

Manufacturer	Models
British Aerospace, Ltd. (BAe).	146-100A and 146-200A.
Cessna Aircraft Corporation.	525, 550, and 560.
Dausault Aviation .....	Mystere-Falcon 20 and 50.
Avions Marcel Dassault .....	Falcon 10.
Gulfstream Aerospace .....	G-1159 (G-II) and G-1159A (G-III).
Raytheon Corporate Jets ...	Hawker 800.
Israel Aircraft Industries, Ltd.	1124.
Sabreliner Corporation .....	NA-65.
Learjet Inc .....	35.
Jetstream Aircraft Ltd .....	4101.

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 (d) 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 within the next 5 days after the effective date of this AD, unless already accomplished.

To prevent deviation of the intended flight path during a non-precision approach to an airport, accomplish the following:

(a) Insert the following limitation into the Operations Limitations Section of the Airplane Flight Manual (AFM) or Flight Manual Supplement:

**Operating Limitations**

The GNS-XL (or GNS-XLS) is not approved for non-precision approaches.

**Note**

The GNS-XL (or GNS-XLS) may generate misleading information during non-precision GPS or Overlay approaches due to software limitations.

(b) Inserting a copy of this AD into the Limitations section as described in paragraph (a) of this AD is considered compliance with the requirements of this AD.

(c) Incorporating the AFM revisions, as required by this AD, may be performed by the owner/operator holding at least a private pilot certificate as authorized by section 43.7 of the Federal Aviation Regulations (14 CFR 43.7), and must be entered into the aircraft records showing compliance with this AD in accordance with section 43.11 of the Federal Aviation Regulations (14 CFR 43.11).

(d) An alternative method of compliance or adjustment of compliance time that provides an equivalent level of safety may be approved by the Manager, Wichita Aircraft Certification Office, 1801 Airport Road, Room 100, Mid-Continent Airport, Wichita, Kansas 67209. The request shall be forwarded through an appropriate FAA Maintenance Inspector, who may add comments and then send it to the Manager, Wichita Aircraft Certification Office.

Note 2: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from Wichita Aircraft Certification Office.

(e) Copies of this AD may be inspected at the FAA, Central Region, Office of the Assistant Chief Counsel, Room 1558, 601 E. 12th Street, Kansas City, Missouri, or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

(f) This amendment (39-9947) becomes effective on March 18, 1997.

Issued in Kansas City, Missouri, on February 19, 1997.

Michael Gallagher,

Manager, Small Airplane Directorate, Aircraft Certification Service.

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