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**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. 2000-CE-32-AD; Amendment 39-12683; AD 2002-06-06]**

**RIN 2120-AA64**

**Airworthiness Directives; Rockwell Collins, Inc. TDR-94 and TDR-94D Mode S Transponders**

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

**ACTION:** Final rule.

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**SUMMARY:** This amendment adopts a new airworthiness directive (AD) that applies to certain Rockwell Collins TDR-94 and TDR-94D Mode S transponders that derive altitude information from a Gillham (gray code) encoded pressure altitude source and are installed on airplanes. This AD requires you to have the unit modified to prevent erroneous altitude reporting. This AD is the result of reports that erroneous altitude resolutions could occur when the affected transponders are utilized in areas with other airplanes equipped with certain aircraft collision avoidance system (ACAS) or traffic alert and collision avoidance system (TCAS) configurations. The actions specified by this AD are intended to prevent these erroneous altitude resolutions from causing a reduction in the intended ACAS or TCAS Change 7 separation margins. Such a condition could result in air traffic control or the pilot making flight decisions that put the airplane in unsafe flight conditions.

**DATES:** This AD becomes effective on May 3, 2002.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulations as of May 3, 2002.

**ADDRESSES:** You may get the service information referenced in this AD from Rockwell Collins Inc., Business and Regional Systems, 400 Collins Road Northeast, Cedar Rapids, Iowa 52498. You may view this information at the Federal Aviation Administration (FAA), Central Region, Office of the Regional Counsel, Attention: Rules Docket No. 2000-CE-32-AD, 901 Locust, Room 506, Kansas City, Missouri 64106; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

**FOR FURTHER INFORMATION CONTACT:** Roger A. Souter, FAA, Wichita Aircraft Certification Office (ACO), 1801 Airport Road, Room 100, Wichita, Kansas 67209; telephone: (316) 946-4134; facsimile: (316) 946-4407; e-mail: [roger.souter@faa.gov](mailto:roger.souter@faa.gov).

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

#### *What Events Have Caused This AD?*

The FAA has received information that erroneous altitude resolutions could occur on certain Rockwell Collins TDR-94 and TDR-94D Mode S transponders installed in airplanes with Gillham (gray code) encoded sources. This information indicates that these transponders are utilized in areas with other airplanes equipped with certain aircraft collision avoidance system (ACAS) or traffic alert and collision avoidance system (TCAS) configurations. In these situations, the transponders could receive incorrect TCAS resolution advisories. This could result in a reduction in the intended ACAS or TCAS Change 7 minimum separation margins.

Gillham altitude sources have a 100-foot resolution. The affected transponder will set the altitude resolution status to indicate a 25-foot resolution when connected to a Gillham altitude source. For those units that have digital sources of altitude information, the altitude resolution status is set correctly.

These Rockwell Collins TDR-94 and TDR-94D Mode S transponders could be installed on, but not limited to, the following airplanes:

- Aerospatiale ATR42 series airplanes;
- deHavilland DHC-7 and DHC-8 series airplanes; and
- Short Brothers Models SD3-60 and SD3-60 SHERPA airplanes.

#### *What Is the Potential Impact if FAA Took No Action?*

As described above, such erroneous altitude resolutions could cause a reduction in the intended ACAS or TCAS Change 7 separation margins and result in air traffic control or the pilot making flight decisions that put the airplane in unsafe flight conditions.

#### *Has FAA Taken Any Action to This Point?*

We issued a proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an AD that would apply to certain Rockwell Collins TDR-94 and TDR-94D Mode S transponders that derive altitude information from a Gillham (gray code) encoded pressure altitude source and are installed on airplanes. This proposal was published in the Federal Register as a notice of proposed rulemaking (NPRM) on November 5, 2001 (66 FR 55898). The NPRM proposed to require you to have the actions of Rockwell Collins Service Bulletin No. 17 (TDR-94/94D-34-17), dated February 8, 1999, incorporated on any affected Mode S transponder that is installed on a type-certificated airplane where Gillham pressure altitude encoding sources are used.

#### *Was the Public Invited To Comment?*

The FAA encouraged interested persons to participate in the making of this amendment. The following presents the comments received on the proposal and FAA's response to each comment:

## **Comment Issue No. 1: Add Revision 1 of Service Bulletin 17 as an Acceptable Method of Compliance**

### *What Is the Commenter's Concern?*

A commenter states that Rockwell Collins Service Bulletin No. 17 (TDR-94/94D-34-17), Revision No. 1, dated May 15, 2000, should be included as an acceptable method of compliance. The commenter states that the only change revision 1 makes to the original service bulletin is in the Material Information.

### *What Is FAA's Response to the Concern?*

The FAA concurs that Revision 1 of the service bulletin should be included as an acceptable method of compliance with this AD. We will incorporate this bulletin into the AD.

## **Comment Issue No. 2: Add Another Service Bulletin as an Acceptable Method of Compliance**

### *What Is the Commenter's Concern?*

The commenter states that Rockwell Collins Service Bulletin 20 (TDR-94/94D-34-20), Revision 1, dated May 2, 2001, should also be included as an acceptable method of compliance with this AD. Service Bulletin 20 allows modification of TDR-94 and TDR-94D Mode S Transponders from the -004 or -005 status to the -006 status. Service Bulletin 20 includes all -005 status functionality required in Service Bulletin 17.

### *What Is FAA's Response to the Concern?*

The FAA concurs that Rockwell Collins Service Bulletin 20 (TDR-94/94D-34-20), Revision 1, dated May 2, 2001, should be included as an acceptable method of compliance with this AD. We will incorporate this bulletin into the AD.

## **FAA's Determination**

### *What Is FAA's Final Determination on This Issue?*

After careful review of all available information related to the subject presented above, we have determined that air safety and the public interest require the adoption of the rule as proposed except for the addition of the referenced service information and minor editorial corrections. We have determined that these additions and minor corrections:

- Provide the intent that was proposed in the NPRM for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM.

## **Cost Impact**

### *How Many Airplanes Does This AD Impact?*

We estimate that 1,400 affected Rockwell Collins TDR-94 and TDR-94D Mode S transponders could be installed on airplanes in the U.S. registry.

*What Is the Cost Impact of This AD on Owners/Operators of the Affected Airplanes?*

We estimate the following costs to accomplish the modification:

<b>Labor cost</b>	<b>Parts cost</b>	<b>Total cost per airplane</b>	<b>Total cost on U.S. operators</b>
3 workhours x \$60 per hour = \$180	\$295	\$475	\$665,000

The manufacturer will provide warranty credit for parts and labor for work done in accordance with Rockwell Collins Service Bulletin No. 17, dated February 8, 1999, Service Bulletin 17, Revision No. 1, dated May 15, 2000, and to the extent noted in Service Bulletin 20, Revision No. 1, dated May 2, 2001.

**Compliance Time of This AD**

*Why Is the Compliance Time of This AD Presented in Calendar Time Instead of Hours Time-In-Service (TIS)?*

The compliance of this AD is presented in calendar time instead of hours TIS because the condition exists regardless of airplane operation. The erroneous altitude indications could occur regardless of the number of times and hours the airplane was operated or the age of the Mode S transponder. For these reasons, FAA has determined that a compliance based on calendar time should be utilized in this AD in order to ensure that the unsafe condition is addressed in a reasonable time period on all airplanes that have an affected Rockwell Collins TDR-94 and TDR-94D Mode S transponder installed, and where Gillham pressure altitude encoding sources are used.

**Regulatory Impact**

*Does This AD Impact Various Entities?*

The regulations adopted herein 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. Therefore, it is determined that this final rule does not have federalism implications under Executive Order 13132.

*Does This AD Involve a Significant Rule or Regulatory Action?*

For the reasons discussed above, I certify that this action (1) is not a "significant regulatory action" under Executive Order 12866; (2) is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); 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. A copy of the final 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, Incorporation by reference, Safety.

## **Adoption of the Amendment**

Accordingly, under 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 U.S.C. 106(g), 40113, 44701.

Sec. 39.13 [Amended]

2. FAA amends Sec. 39.13 by adding a new AD to read as follows:

# AIRWORTHINESS DIRECTIVE



Aircraft Certification Service  
Washington, DC

U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

*We post ADs on the internet at "av-info.faa.gov"*

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

**2002-06-06 Rockwell Collins, Inc.:** Amendment 39-12683; Docket No. 2000-CE-32-AD.

(a) *What airplanes are affected by this AD?* This AD applies to TDR-94 Mode S transponders (Collins part number (CPN) 622-9352-004) and TDR-94D Mode S transponders (CPN 622-9210-004) that derive altitude information from a Gillham (gray code) encoded pressure altitude source and are installed on, but not limited to, the following airplanes that are certificated in any category:

- (1) Aerospatiale ATR42 series airplanes;
- (2) deHavilland DHC-7 and DHC-8 series airplanes; and
- (3) Short Brothers Models SD3-60 and SD3-60 SHERPA airplanes.

(b) *Who must comply with this AD?* Anyone who wishes to operate any airplane with one of the affected TDR-94 or TDR-94D Mode S Transponder units installed must comply with this AD.

(c) *What problem does this AD address?* The actions specified by this AD are intended to prevent erroneous altitude resolutions from causing a reduction in the intended aircraft collision avoidance system (ACAS) or traffic alert and collision avoidance system (TCAS) Change 7 minimum separation margins. Such a condition could result in air traffic control or the pilot making flight decisions that put the airplane in unsafe flight conditions.

(d) *What actions must I accomplish to address this problem?* To address this problem, you must accomplish the following:

<b>Actions</b>	<b>Compliance</b>	<b>Procedures</b>
(1) Determine whether the altitude information from any TDR-94 Mode S transponder (CPN 622-9352-004) or TDR-94D Mode S transponder (CPN 622-9120-004) is derived from a digital air data source or a Gillham (gray code) encoded source.	Within the next 3 months after May 3, 2002 (the effective date of this AD).	As specified in Rockwell Collins Service Bulletin No. 17 (TDR-94/94D-34-17), dated February 8, 1999, Service Bulletin 17, Revision No. 1, dated May 15, 2000, or Service Bulletin 20 (TDR-94/94D-34-20), Revision No. 1, dated May 2, 2001. Collins Product Information Letter No. 71, dated January 1999, references Service Bulletin 17, dated February 8, 1999

(2) If the altitude information is derived from a Gillham (gray code) encoded source, have the unit modified to prevent erroneous altitude reporting. The modification encompasses converting the TDR-94 transponder from Collins part number (CPN) 622-9352-004 to CPN 622-9352-005 or converting CPN 622-9352-004/005 to CPN 622-9352-006; and converting the TDR 94D transponder from CPN 622-9210-004 to CPN 622-9210-005 or converting CPN 622-9210-004/005 to CPN 622-9210-006.	At the next transponder check required by 14 CFR 91.413 and occurs 3 months after May 3, 2002 (the effective date of this AD) or within the next 9 months after May 3, 2002 (the effective date of this AD), whichever occurs first.	In accordance with Rockwell Collins Service Bulletin No. 17 (TDR-94/94D-34-17), dated February 8, 1999, Service Bulletin 17, Revision No. 1, dated May 15, 2000, or Service Bulletin 20 (TDR-94/94D-34-20), Revision No. 1, dated May 2, 2001. Collin Product Information Letter No. 71, dated January 1999, references Service Bulletin 17, dated February 8, 1999.
(3) If the altitude information from all affected transponders is derived from a digital air data source, no modification action is required by this AD.	Not applicable	Not applicable.
(4) Do not install any TDR-94 Mode S transponder (CPN 622-9352-004) or TDR-94D Mode S transponder (CPN 622-9210-004) on any airplane if the altitude information is derived from a Gillham (gray code) encoded source, unless the modification required by paragraph (d)(2) of this Ad is incorporated.	As of May 6, 2002 (the effective date of this AD).	Accomplish the modification in accordance with Rockwell Collins Service Bulletin No. 17 (TDR-94/94D-34-17), dated February 8, 1999, Service Bulletin 17, Revision No. 1, dated May 15, 2000, or Service Bulletin 20 (TDR-94/94D-34-20), Revision No. 1, dated May 2, 2001. Collins Product Information Letter No. 71, dated January 1999, references Service Bulletin 17, dated February 8, 1999.

(e) *Can I comply with this AD in any other way?* You may use an alternative method of compliance or adjust the compliance time if:

- (1) Your alternative method of compliance provides an equivalent level of safety; and
- (2) The Manager, Wichita Aircraft Certification Office (ACO), approves your alternative.

Submit your request through an FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Wichita ACO.

**Note:** This AD applies to each airplane identified in paragraph (a) of this AD, 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) 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 you have not eliminated the unsafe condition, specific actions you propose to address it.

(f) *Where can I get information about any already-approved alternative methods of compliance?* You can contact Roger A. Souter, FAA, Wichita Aircraft Certification Office (ACO), 1801 Airport Road, Room 100, Wichita, Kansas 67209; telephone: (316) 946-4134; facsimile: (316) 946-4407; e-mail: [roger.souter@faa.gov](mailto:roger.souter@faa.gov).

(g) *What if I need to fly the airplane to another location to comply with this AD?* The FAA can issue a special flight permit under sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate your airplane to a location where you can accomplish the requirements of this AD.

(h) *Are any service bulletins incorporated into this AD by reference?* Actions required by this AD must be done in accordance with Rockwell Collins Service Bulletin No. 17 (TDR-94/94D-34-17), dated February 8, 1999, Rockwell Collins Service Bulletin Service Bulletin 17 (TDR-94/94D-34-17), Revision No. 1, dated May 15, 2000, or Service Bulletin 20 (TDR-94/94D-34-20), Revision No. 1, dated May 2, 2001. The Director of the Federal Register approved this incorporation by reference under 5 U.S.C. 552(a) and 1 CFR part 51. You can get copies from Rockwell Collins Inc., Business and Regional Systems, 400 Collins Road Northeast, Cedar Rapids, Iowa 52498. You can look at copies at the FAA, Central Region, Office of the Regional Counsel, 901 Locust, Room 506, Kansas City, Missouri, or at the Office of the Federal Register, 800 North Capitol Street, NW, suite 700, Washington, DC.

(i) *When does this amendment become effective?* This amendment becomes effective on May 3, 2002.

Issued in Kansas City, Missouri, on March 12, 2002.

Dorenda D. Baker,  
Acting Manager, Small Airplane Directorate, Aircraft Certification Service.  
[FR Doc. 02-6625 Filed 3-22-02; 8:45 am]  
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