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## DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39 [59 FR 514 NO. 3 01/05/94]

Docket No. 93-CE-47-AD; Amendment 39-8788; AD 94-01-06

Airworthiness Directives: Rockwell International, Collins Air Transport Division, Traffic Alert and Collision Avoidance System II Processors

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

**SUMMARY:** This amendment adopts a new airworthiness directive (AD) that applies to certain Rockwell International, Collins Air Transport Division (Collins), Traffic Alert and Collision Avoidance System (TCAS) II processors that are installed on aircraft. This action requires replacing the existing TCAS II processor with a new processor that incorporates updated computer logic or reprogramming certain processors while they are still on board the aircraft. The development of candidate enhancements to TCAS II logic that improves its utility and increases its overall operational acceptance prompted the proposed action. The actions specified by this AD are intended to prevent collisions or near misses caused by incompatibility between the TCAS II processors and the current air traffic control system.

**EFFECTIVE DATE:** February 4, 1994.

**ADDRESSES:** Service information that is referenced in this AD may be obtained from Rockwell International/Collins Air Transport Division, 400 Collins Road, NE; Cedar Rapids, Iowa 52498. Information that relates to this AD may be examined at the Federal Aviation Administration (FAA), Central Region, Office of the Assistant Chief Counsel, Room 1558, 601 E. 12th Street, Kansas City, Missouri 64106.

**FOR FURTHER INFORMATION CONTACT:** Mr. Roger A. Souter, Aerospace Engineer, Wichita Aircraft Certification Office, 1801 Airport Road, Room 100, Mid-Continent Airport, Wichita, Kansas 67209; telephone (316) 946-4134; facsimile (316) 946-4407.

**SUPPLEMENTARY INFORMATION:** A proposal to amend part 39 of the Federal Aviation Regulations to include an AD that applies to certain Collins TCAS II processors that are installed on aircraft was published in the **Federal Register** on September 9, 1993 (58 FR 47409). The action proposed to require (1) removing from service all processors that do not have computer

logic "Change 6.04A" incorporated; and (2) mandatory incorporation of "Change 6.04A" into the TCAS II computer system.

The affected TCAS II processors are not designed for a specific aircraft type. The Collins TCAS II processors are installed on, but not limited to the following:

**General Aviation Airplanes:**

Astra Model 1125 airplanes;  
BAC Model 1-11 airplanes;  
British Aerospace Model 125-800 airplanes;  
Beech Models C90A, B200, 300, 350, and 400A airplanes;  
Canadair Models CL-600, CL-600-2B16, CL-601, CL-601-1A, and CL-601-3A airplanes;  
Learjet Models 31, 55, and 60 airplanes;  
Falcon Models 20, 50, 200, and 900 airplanes  
Gulfstream Models G2 and G3 airplanes;  
British Aerospace Models HS-125-700 airplanes; and  
Sabreliner Model 60 airplanes.

**Air Transport Airplanes:**

Aerospatiale Models ATR-42 and ATR-72 airplanes;  
Airbus Industries Models A300B2, A-300B, and A-320 airplanes;  
British Aerospace Models ATP and 146 airplanes;  
Boeing Models 707, 727, 737, 747, 757, and 767 airplanes;  
British Aerospace/Aerospatiale Model Concorde SST airplanes;  
de Havilland DHC-7 and DHC-8 series airplanes;  
McDonnell Douglas Models DC-8, DC-9, and DC-10, MD-80, and MD-11 airplanes;  
Ilyushin Model IL-86 airplanes;  
Lockheed Model L-1011 airplanes;  
SAAB Models SF340A and SF340B airplanes; and  
Shorts Models SD3-60-300 airplanes.

Interested persons have been afforded an opportunity to participate in the making of this amendment. Due consideration has been given to the comments received from 31 different owners, operators, manufacturers, and organizations.

All commenters express their concern of the FAA's compliance date of December 30, 1993. The following summarizes the compliance times that the commenters recommended:

- 21 recommended one year or less;
- 3 recommended longer than one year; and
- 7 recommended an extension without a proposed time.

The National Air Traffic Controllers Association and the Airline Pilots Association both recommend an "aggressive implementation" of "Change 6.04A". The FAA has re-evaluated the December 30, 1993, compliance time and has determined that the compliance time should be changed to December 31, 1994. In addition, "Change 6.04A" has been upgraded to "Change 6.04A Enhanced", which eliminates unnecessary non-crossing resolution advisories (RA's)

included in "Change 6.04A". Collins has assured the FAA that (1) the upgrade to "Change 6.04A Enhanced" is minor and will be incorporated in the logic change for the TCAS II processor upgrades; and (2) this compliance time correlates with their schedule for disseminating service information and kits necessary to accomplish the incorporation of "Change 6.04A Enhanced". The proposed AD has been changed to reflect the compliance time change and logic change described above.

One commenter states that the affected aircraft operators should operate their TCAS II units in the "TA Mode Only" until the new logic is incorporated because of possible hidden problems that could exist between different logic versions currently installed. The FAA does not concur that these TCAS II units should be operated in the "TA Mode Only". The information provided by an RA may prove to be useful to the pilot. The pilot has the option of whether to utilize the RA information. The proposed AD is unchanged as a result of this comment.

A commenter recommends referencing Collins Service Bulletin (SB) No. 16, TTR-920-34-16, dated December 9, 1993, as a way of complying with the proposed AD. The FAA concurs that this service information is a way of complying with the proposed action, and has included a note in the final rule that so indicates this.

Another commenter proposes a change to the proposed AD that would allow reprogramming the existing unit on board the aircraft as a method of compliance with the proposed action. The FAA concurs that certain existing TCAS II part numbers may be reprogrammed with the unit on board the aircraft. The proposed AD has been modified to include this method on the applicable TCAS II processor part numbers.

One commenter states that reference to the SAAB 340B airplanes in the General Aviation Airplanes list should be deleted. This commenter also recommends that reference to the Aerospatiale ATR-42 and ATR-72 airplanes be moved from the General Aviation Airplanes list to the Air Transport Airplanes list. The FAA concurs and has revised the proposed AD accordingly.

One commenter, who supports the implementation of "Change 6.04A Enhanced", requests that the FAA issue a supplementary notice of proposed rulemaking (NPRM) to propose installing this revised software by June 30, 1995. This commenter states that significant differences exist between "Change 6.04A" and "Change 6.04A Enhanced". The FAA does not concur. Comments received in response to the proposed AD reflect unanimous support for implementing "Change 6.04A Enhanced". The FAA considers the logic change (which reduces non-crossing RA's) to be minor. The intent is to correct the unsafe condition by installing modified TCAS II computer units that incorporate updated logic. The FAA has determined that the requirement to implement Version 6.04A software, including the latest enhancement, will (1) correct the unsafe condition; (2) maintain the same intent originally proposed without altering the substance of the proposed rule; and (3) impose no additional burden on the public than was previously proposed.

In addition, issuing a supplemental NPRM would necessitate (under the provisions of the Administrative Procedures Act) reissuing the notice, reopening the public comment period, considering any additional comments received, and eventually issuing a final rule. The time required for these procedures could take as long as four additional months. In light of this, and in consideration of the amount of time that has already elapsed since issuance of the original NPRM, the FAA concludes that soliciting further public comment is not necessary and that

further delay of the final rule action is not appropriate.

Several commenters request that the FAA revise the economic impact specified in the proposed AD to reflect costs associated with the development, testing prior to certification, and certification of the modified processor. These costs would be absorbed by suppliers, installers, and airline operators. The FAA does not concur that the economic impact statement include this information. The 5 workhours necessary to accomplish the proposed action was provided to the FAA by the TCAS II processor manufacturer based on the best data available to date. This number represents the time required to install the revised software and test for proper operation after installation. The cost analysis in AD rulemaking actions typically does not include costs associated with development, testing prior to certification, and certification of a modified processor. The proposed action remains unchanged as a result of these comments.

After careful review of all available information including the comments noted above, the FAA has determined that air safety and the public interest require the adoption of the rule as proposed except for the change in compliance time, the logic reference change, the option of reprogramming certain units on board the aircraft, reference to Collins SB No. 16, TTR-920-34-16, dated December 9, 1993, and minor editorial corrections. The FAA has determined that these changes and corrections will not change the meaning of the AD nor add any additional burden upon the public than was already proposed.

The FAA estimates that 1,995 TCAS II processors in the U.S. registry will be affected by this AD, that it will take approximately 5 workhours per processor (1 workhour for installation and 4 workhours for operational testing) to accomplish the required action, and that the average labor rate is approximately \$55 an hour. Based on these figures, the total cost impact of this AD on U.S. operators is estimated to be \$548,625. These figures are based on the assumption that none of the operators of the airplanes equipped with the affected TCAS II processors have accomplished the actions specified in this AD.

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.

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, Safety.

#### **Adoption of the Amendment**

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends 14 CFR part 39 of the Federal Aviation Regulations as follows:

## PART 39 - AIRWORTHINESS DIRECTIVES

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

Authority: 49 U.S.C. App. 1354(a), 1421 and 1423; 49 U.S.C. 106(g); and 14 CFR 11.89.

Section 39.13 - [AMENDED]

2. Section 39.13 is amended by adding the following new AD:

# AIRWORTHINESS DIRECTIVE



Aircraft Certification Service  
Washington, DC

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

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The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Federal Aviation Regulations, 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).

## **94-01-06 ROCKWELL INTERNATIONAL, COLLINS AIR TRANSPORT DIVISION: Amendment 39-8788. Docket No. 93-CE-47-AD.**

Applicability: Traffic Alert and Collision Avoidance System II processors that are installed on, but not limited to the following airplanes (all serial numbers), certificated in any category:

### **General Aviation Airplanes:**

Astra Model 1125 airplanes;  
BAC Model 1-11 airplanes;  
British Aerospace Model 125-800 airplanes;  
Beech Models C90A, B200, 300, 350, and 400A airplanes;  
Canadair Models CL-600, CL-600-2B16, CL-601, CL-601-1A, and CL-601-3A airplanes;  
Learjet Models 31, 55, and 60 airplanes;  
Falcon Models 20, 50, 200, and 900 airplanes  
Gulfstream Models G2 and G3 airplanes;  
British Aerospace Models HS-125-700 airplanes; and  
Sabreliner Model 60 airplanes.

### **Air Transport Airplanes:**

Aerospatiale Models ATR-42 and ATR-72 airplanes;  
Airbus Industries Models A300B2, A-300B, and A-320 airplanes;  
British Aerospace Models ATP and 146 airplanes;  
Boeing Models 707, 727, 737, 747, 757, and 767 airplanes;  
British Aerospace/Aerospatiale Model Concorde SST airplanes;  
de Havilland DHC-7 and DHC-8 series airplanes;  
McDonnell Douglas Models DC-8, DC-9, and DC-10, MD-80, and MD-11 airplanes;  
Ilyushin Model IL-86 airplanes;  
Lockheed Model L-1011 airplanes;  
SAAB Models SF340A and SF340B airplanes; and  
Shorts Models SD3-60-300 airplanes.

Compliance: Prior to December 31, 1994, unless already accomplished.

To prevent collisions or near misses caused by incompatibility between the traffic alert

and collision avoidance system (TCAS) II processors and the current air traffic control system, accomplish the following:

(a) Incorporate "Change 6.04A Enhanced" by accomplishing either (1) or (2) below, as applicable:

(1) Remove any TCAS II processor with a part number (P/N) suffix listed in the "Existing P/N Suffix" column of the table below, and install a corresponding TCAS II processor with a P/N listed in the "New P/N Suffix" column of the table below:

<b>Existing P/N Suffix</b>	<b>New P/N Suffix</b>
-001, -002, -011, -012, or -612	-020
-102, -111, or -112	-120
-014	-320

NOTE 1: Collins SB No. 16, TTR-920-34-16, dated December 9, 1993, specifies procedures for incorporating the referenced New P/N suffixes.

(2) Change the part number of the TCAS II unit on board the aircraft by reprogramming the software with a data loader in order to obtain the New P/N Suffix as specified in the following table:

<b>Existing P/N Suffix</b>	<b>New P/N Suffix</b>
-012	-020
-112	-120
-014	-320

NOTE 2: Units with P/N suffix of -001, -002, -011, -102, -111, and -612 cannot be reprogrammed on board the aircraft.

NOTE 3: Operators are encouraged to update the Airplane Flight Manual (AFM) or AFM Supplement. Collins TTR-920 TCAS II Transmitter Receiver Service Information Letter 2-93, titled "CAS Logic Change 6.04A" specifies the information needed for this update.

(b) Special flight permits may be issued in accordance with FAR 21.197 and 21.199 to operate the airplane to a location where the requirements of this AD can be accomplished.

(c) An alternative method of compliance or adjustment of the compliance times 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 (ACO).

NOTE 4: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Wichita ACO.

(d) Service information that is referenced in this AD may be obtained from Rockwell International/Collins Air Transport Division, 400 Collins Road, NE; Cedar Rapids, Iowa 52498. This information may also be examined at the FAA, Central Region, Office of the Assistant Chief Counsel, Room 1558, 601 E. 12th Street, Kansas City, Missouri 64106.

(e) This amendment becomes effective on February 4, 1994.