EMERGENCY AIRWORTHINESS DIRECTIVE

Aircraft Certification Service
Washington, DC

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

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DATE: January 27, 2003
AD #: 2003-03-18

Send to all owners and operators of Raytheon Aircraft Company (Raytheon) Beech Models 1900, 1900C, and 1900D airplanes, all serial numbers, that are certificated in any category.

Discussion

What events have caused this AD? Recent ground testing and a review of the rigging procedures of a Raytheon Beech Model 1900D airplane reveals that the elevator control system could be mis-rigged to restrict elevator travel if current maintenance procedures are not properly followed. In these instances, it may appear to the crew that they have full elevator control column movement. However, the elevator may not have full travel. Such restricted travel may remain undetected until the airplane is operated in a loading condition that requires full elevator authority to control the pitch.

The Raytheon Beech Models 1900 and 1900C airplanes incorporate the same elevator control system design and are affected by this condition.

What are the consequences if the condition is not corrected? In certain loading conditions, a mis-rigged elevator control system, if not detected and corrected, could lead to insufficient elevator control authority and loss of control of the airplane.

Is there service information that applies to this subject? Raytheon has not issued service information regarding this subject. Rigging procedures are included in the applicable Raytheon 1900/1900C or 1900D maintenance manual.

What has FAA decided? The FAA has reviewed all available information and determined that:

- the unsafe condition referenced in this document exists or could develop on Raytheon Models 1900, 1900C, and 1900D airplanes of the same type design;

- inspections and verifications should be accomplished on all affected airplanes to ensure that the elevator surfaces have full travel;

- in order to add redundancy to the process, the FAA is including an additional verification procedure following any future re-rigging of the elevator control system; and

- AD action should be taken in order to correct this unsafe condition.

What does this AD require? This AD requires you to:

- perform control column sweep and stop bolt inspections to verify full elevator travel to the primary up and down stops and to verify that the stop bolt length is not excessive;

- if the airplane does not pass the initial control column sweep and stop bolt inspections, re-rig and/or do a more detailed inspection of the elevator control system;

- if the airplane does pass the initial control column sweep and stop bolt length inspections, do a more detailed inspection within 100 hours time-in-service (TIS); and

- report the results of the initial inspection and the 100-hour TIS inspection (if applicable).

Presentation of the Actual AD

This rule is issued under 49 U.S.C. Section 44701 (formerly section 601 of the Federal Aviation Act of 1958), pursuant to the authority delegated to me by the Administrator, and is effective immediately upon receipt of this action.

2003-03-18 RAYTHEON AIRCRAFT COMPANY: Docket No. 2003-CE-07-AD.

(a) What airplanes are affected by this AD? This AD applies to Beech Models 1900, 1900C, and 1900D airplanes, all serial numbers, that are certificated in any category.

(b) Who must comply with this AD? Anyone who operates any of the airplanes identified in paragraph (a) of this AD must comply with this AD.

(c) What problem does this AD address? The actions specified by this AD are intended to detect and correct any mis-rigged elevator control system, which could lead to insufficient elevator control authority and loss of control of the airplane.

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

Actions	Compliance	Procedures
(1) Perform a control column sweep inspection to verify full elevator travel to the primary up and down stops. Accomplish this inspection using the following procedures: (i) Remove the aft fairing from the vertical stabilizer to gain visual access to surface stop bolts on the elevator control horn support using the applicable Raytheon Aircraft Company 1900/1900C or 1900D maintenance manual. (ii) Have another appropriately-rated maintenance person perform a full pitch-down to full pitch-up control column sweep. Visually ensure that the elevator control horns contact the surface stop bolts for both the full pitch-down and full pitch-up control column positions. (iii) Measure the length of both elevator down stop bolts from the crown of the bolt head to the face of the elevator lower stop bolt support. (A) If the dimension of each stop bolt is equal to or less than 1.00 inch, the bolts are acceptable for the purposes of this inspection. (B) If the dimension of either stop bolt is greater than 1.00 inch, accomplish (prior to further flight) the travel board inspection procedures as specified in paragraph (d)(3)(i) of this AD. If it passes the procedure specified in paragraph (d)(3)(i), the bolt is acceptable even though it exceeds 1.00 inch.	Initially inspect no later than January 31, 2003 (four days after distribution of this emergency AD). If necessary, accomplish the travel board inspection prior to further flight after the inspection required by paragraph (d)(1)(iii)(B) of this AD.	In accordance with the applicable Raytheon Aircraft Company 1900/1900C or 1900D maintenance manual.

(2) If the airplane does not pass the control column sweep inspection or bolt length requirements of paragraphs (d)(1)(ii), (d)(1)(iii), or (d)(3)(i) of this AD: (i) Accomplish the elevator control system rigging procedure in accordance with the applicable Raytheon Aircraft Company 1900/1900C or 1900D maintenance manual. Do not reinstall the aft fairing because access to the surface stop bolts is still necessary; (ii) Perform a control column sweep inspection by accomplishing the actions in paragraphs (d)(1)(ii), (d)(3)(i), and (d)(3)(ii) of this AD. These actions are also referenced in paragraph (d)(4) of this AD; and (iii) When the airplane passes the requirements of the above inspection, replace the aft fairing.	Prior to further flight after the applicable inspection required by paragraphs (d)(1), (d)(3), and (d)(4) of this AD.	In accordance with the applicable Raytheon Aircraft Company 1900/1900C or 1900D maintenance manual.

(3) If the airplane passes the inspection of paragraph (d)(1) of this AD, replace (prior to further flight) the aft fairing; and accomplish (d)(3)(i) of this AD within 100 hours TIS and any necessary actions prior to further flight after that as specified in paragraphs (d)(3)(ii) of this AD: (i) Utilizing elevator travel boards, inspect to ensure that the surface stops on the control horn support allow the following: (A) Up elevator travel of 20 degrees, +1 degree –0 degree; and (B) Down elevator travel of 14 degrees, +1 degree –0 degree. (ii) If the airplane does not pass the inspection required by paragraph (d)(3)(i)of this AD, accomplish (prior to further flight) the elevator control system rigging procedures as specified in paragraphs (d)(2)(i), (d)(2)(ii), and (d)(3)(i) of this AD.	Replace the aft fairing prior to further flight after the applicable inspection required by paragraphs (d)(1), (d)(3), and (d)(4) of this AD. Unless accomplished per paragraph (d)(1)(iii)(B) of this AD, accomplish the travel board inspection within 100 hours TIS after the initial inspection required by paragraph (d)(1) of this AD. Accomplish any necessary re-rigging prior to further flight after the inspection required by this AD.	In accordance with the applicable Raytheon Aircraft Company 1900/1900C or 1900D maintenance manual.

(4) Perform a control column sweep inspection by accomplishing the actions of paragraphs (d)(1)(i), (d)(1)(ii), (d)(2), (d)(3)(i), and (d)(3)(ii) of this AD. If the aft fairing is already removed, the actions in paragraph (d)(1)(i) are not required.	Prior to further flight after each time the elevator control system is re-rigged. Examples of items that require re-rigging include, but are not limited to, changing the tension on the elevator primary control cables and replacing the elevator control system components such as cables, pulleys, push-pull tubes, and bellcranks.	In accordance with the applicable Raytheon Aircraft Company 1900/1900C or 1900D maintenance manual.
(5) Report the results of the initial inspection required by paragraph (d)(1) of this AD and the initial travel board inspection required by paragraph (d)(3)(i) of this AD. Break out the results of the control column sweep inspection, bolt length measurement, and the travel board inspection. Along with the results, include the airplane model, serial number, and the number of hours TIS at the time of inspection. Label the document "Inspection results of AD 2003-03-18."	Within 10 days after the initial inspections required by paragraph (d)(1) or (d)(3)(i) of this AD.	Submit the results to the Raytheon Aircraft Company, 9709 E. Central, Wichita, Kansas 67201-0085; telephone: (800) 429-5372 or (316) 676-3140; facsimile: (316) 676-8051; email: tom_peay@raytheon.com.

(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 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? Contact Paul DeVore, Aerospace Engineer, FAA, Wichita Aircraft Certification Office, 1801 Airport Road, Room 100, Mid-Continent Airport, Wichita, Kansas 67209; telephone: (316) 946-4142; facsimile: (316) 946-4407.

(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 provided the following is adhered to:

(1) When re-rigging is required, operate the airplane with crew only and no cargo.

(2) All special flight permits must be coordinated with the Wichita ACO at the address, phone number, and facsimile number specified in paragraph (f) of this AD.

(h) Where can I view information related to this AD? You may view information related to this AD at FAA, Central Region, Office of the Regional Counsel, 901 Locust, Room 506, Kansas City, Missouri 64106

(i) When does this AD become effective? **This emergency AD becomes effective immediately upon receipt**.

Issued in Kansas City, Missouri, on January 27, 2003.

s/
Michael Gallagher,
Manager, Small Airplane Directorate,
Aircraft Certification Service.