

EMERGENCY AIRWORTHINESS DIRECTIVE



Aircraft Certification Service
Washington, DC

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

www.faa.gov/aircraft/safety/alerts/

DATE: January 19, 2006
AD #: 2006-02-51

Send to all owners and operators of Raytheon Aircraft Company (Raytheon) Model 390 airplanes, all serial numbers.

Discussion

What events have caused this AD? The FAA received reports of four failures of the part number (P/N) 390-580035-0001 hydraulic tube assembly located on the left engine assembly of Raytheon Model 390 airplanes. The failures resulted in in-flight loss of hydraulic fluid. The tube is installed between the hydraulic pump and the hydraulic pulsation damper and carries hydraulic pump output pressure.

The latest failure occurred on an airplane with 83 hours time-in-service on the hydraulic tube assembly.

What are the consequences if the condition is not corrected? Failure of the hydraulic tube assembly and consequent leaking of hydraulic fluid could result in loss of hydraulic system functions and risk of fire because of flammable fluid leakage in the engine nacelle. This failure could lead to loss of control of the airplane.

Is there service information that applies to this subject? Raytheon has issued the following:

- Safety Communique No. 267, dated January 2006, which includes procedures for visually inspecting the P/N 390-580035-0001 hydraulic tube installation; and
- Mandatory Service Bulletin No. SB 29-3771, dated January 2006, which includes procedures for performing detailed inspections of the hydraulic tube assembly and replacing the clamping hardware.

What has FAA decided? We have evaluated all information related to this subject and identified an unsafe condition that is likely to exist or develop on other Raytheon Aircraft Company 390 airplanes of the same type design. Therefore, we are issuing this AD to prevent failure of the hydraulic tube assembly and consequent leaking of hydraulic fluid. This failure could result in loss of hydraulic system functions and risk of fire because of flammable fluid leakage in the engine nacelle and lead to loss of control of the airplane.

What does this AD require? This AD requires you to do the following:

- inspect the hydraulic tube assembly (P/N 390-580035-0001 or P/N 390-580035-0005) and the clamp (P/N MS21919WCJ6 or P/N MS21919WCJ7) (or FAA-approved equivalent part numbers), as specified in the service information.;
- replace the clamp at each inspection;
- replace the hydraulic tube assembly immediately if any of the problems identified in the service bulletin are found; and
- report the results of each inspection or replacement to the FAA.

Did FAA coordinate the technical aspects of this AD with anyone outside the agency? In preparation of this rule, we contacted type clubs and aircraft operators to obtain technical information and information on operational and economic impacts. We did not receive any information through these contacts. If received, we would have included a discussion of any information that may have influenced this action in the rulemaking docket.

Will FAA take future rulemaking action on this subject? Raytheon is looking at the development of a design modification that would eliminate the need for the repetitive inspections required by this emergency AD. When this design modification is complete, FAA will evaluate it and determine whether additional AD action is necessary.

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.

2006-02-51 RAYTHEON AIRCRAFT COMPANY: Directorate ID 2005-CE-51-AD.

When Does This AD Become Effective?

- (a) This emergency AD becomes effective upon receipt.

Are Any Other ADs Affected By This Action?

- (b) None.

What Airplanes Are Affected by This AD?

- (c) This AD affects the following Model 390 airplanes that are certificated in any category:
- (1) serial numbers RB-1 through RB-49 that are equipped with Kit 390-9100 that incorporates part number (P/N) 390-580035-0001 (or FAA-approved equivalent part number);
 - (2) serial numbers RB-50 through RB-141; and
 - (3) serial numbers RB-143 through RB-148

What is the Unsafe Condition Presented in This AD?

(d) This AD is the result of failure of the hydraulic tube assembly, which caused in-flight loss of hydraulic fluid. We are issuing this AD to prevent failure of the hydraulic tube assembly and the clamp and consequent leaking of hydraulic fluid. This failure could result in loss of hydraulic system functions and risk of fire because of flammable fluid leakage in the engine nacelle and lead to loss of control of the airplane.

What Must I do to Address This Problem?

(e) To address this problem, you must do the following:

Actions	Compliance	Procedures
<p>(1) Perform a one-time visual inspection of the hydraulic tube assembly and clamp using Raytheon Safety Communique No. 267, dated January 2006. Perform repetitive detailed inspections thereafter per Raytheon Mandatory Service Bulletin No. SB 29-3771, dated January, 2006.</p> <p>(i) The tube assembly part number is P/N 390-580035-0001 or P/N 390-580035-0005).</p> <p>(ii) The clamp part number is P/N MS21919WCJ6 or P/N MS21919WCJ7.</p>	<p>Visually inspect before further flight after receipt of this emergency AD. Perform the detailed inspection within 10 hours time-in-service (TIS) after receipt of this emergency AD, and thereafter at intervals not to exceed 50 hours TIS. You may perform the detailed inspection before further flight instead of the visual inspection.</p>	<p>For the visual inspection, use Raytheon Safety Communique No. 267, dated January 2006. For the detailed inspections, use the procedures in Raytheon Mandatory Service Bulletin No. SB 29-3771, dated January, 2006.</p>
<p>(2) Replace the hydraulic tube assembly (P/N 390-580035-0001 or P/N 390-580035-0005) and the clamp (P/N MS21919WCJ6 or P/N MS21919WCJ7) (or FAA-approved equivalent part numbers) with new P/N 390-580035-0001 or P/N 390-580035-0005 and P/N MS21919WCJ7 (or FAA-approved equivalent part numbers) or used parts.</p>	<p>Replace the clamp at each inspection. Replace the tube assembly prior to further flight after any inspection where evidence of chafing, excessive vibration, wear, deterioration, or hydraulic fluid leakage is found. Refer to SB 29-3771, dated January, 2006 for acceptance / rejection information for the tube assembly.</p>	<p>Follow the procedures in Raytheon Mandatory Service Bulletin No. SB 29-3771, dated January, 2006.</p>

(3) Report the results to FAA of each inspection or replacement required in paragraphs (e)(1) and (e)(2) of this AD. The Office of Management and Budget (OMB) approved the information collection requirements contained in this regulation under the provisions of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 and those following sections) and assigned OMB Control Number 2120-0056.

Within 10 days after the inspection or replacement or within 10 days after receipt of this AD, whichever occurs later.

Include in your report the airplane serial number, the TIS of the airplane, and the TIS of the hydraulic tube assembly (P/N 390-580035-0001 or P/N 390-580035-0005) (or FAA-approved equivalent part number). Email/send your report to James P. Galstad, Propulsion Aerospace Engineer, ACE 116W, Wichita Aircraft Certification Office, 1801 Airport Road, Room 100, Wichita, Kansas 67209; email: james.galstad@faa.gov; telephone: 316-946-4135; facsimile: 316-946-4107.

(4) Repositioning and Special Flight Permits: You may operate the airplane to return/position the airplane to a home base, hangar, maintenance facility, etc., for the purpose of doing only the visual inspection required by this AD.

(i) Operation of up to 10 hours time-in-service (TIS) is allowed for visual inspection repositioning flight(s) provided the flight(s) occur(s) no later than 30 days after January 19, 2006. This is a one-time provision.

(ii) Special flight permits are also allowed for the visual inspection required for this AD. Use the procedures in 14 CFR part 39.

(iii) Special flight permits are prohibited for the detailed inspections and possible replacements required by this AD.

(iv) For any repositioning flight or special flight permit for the visual inspection, you must operate with only the PILOT AND ANY ADDITIONAL FLIGHT CREW MEMBER REQUIRED FOR SAFE OPERATION.

(5) Disposal of Parts: Return replaced hydraulic tube assembly (P/N 390-580035-0001 or P/N 390-580035-0005) to Raytheon Aircraft Company per SB 29-3771 and dispose of the P/N MS21919WCJ6 or P/N MS21919WCJ6 clamp (or FAA-approved equivalent part numbers) following 14 CFR 43.10. Ship any replaced hydraulic tube and dispose of the clamp prior to returning the aircraft to service.

(6) Parts Manufacturer Approval (PMA): 14 CFR 21.303 allows for replacement parts through PMA. The phrase "or FAA-approved equivalent part number(s)" in this AD is intended to signify those parts that are PMA approved through identity to the design of the part under the type certificate and replacement parts to correct the unsafe condition under PMA (other than identity). If parts are installed that are identical to the unsafe parts, then the corrective actions of the AD affect these parts also. In addition, equivalent replacement parts to correct the unsafe condition under PMA (other than identity) may also be installed provided they meet current airworthiness standards, which include those actions cited in this AD.

May I Request an Alternative Method of Compliance?

(f) You may request a different method of compliance or a different compliance time for this AD by following the procedures in 14 CFR 39.19. Unless FAA authorizes otherwise, send your request to your principal inspector. The principal inspector may add comments and will send your request to the Manager, Wichita Aircraft Certification Office, FAA. For information on any already approved alternative methods of compliance, contact James P. Galstad, Propulsion Aerospace Engineer, ACE 116W, Wichita Aircraft Certification Office, 1801 Airport Road, Room 100, Wichita, Kansas 67209; telephone: 316-946-4135; facsimile: 316-946-4107.

Issued in Kansas City, Missouri, on January 19, 2006.

John R. Colomy,
Acting Manager, Small Airplane Directorate,
Aircraft Certification Service.