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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2006-24010; Directorate Identifier 2006-CE-14-AD; Amendment 39-14787; AD 2006-21-03]

RIN 2120-AA64

Airworthiness Directives; Cirrus Design Corporation Models SR20 and SR22 Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA adopts a new airworthiness directive (AD) for certain Cirrus Design Corporation (CDC) Models SR20 and SR22 airplanes. This AD requires you to check the maintenance records to determine whether the brake caliper piston O-ring seals were replaced at the last annual or 100-hour inspection. If the O-rings were not replaced, this AD requires you to replace the O-ring seals with new seals or replace brake calipers. This AD also requires you to modify the main landing gear wheel fairings to add temperature indicator sticker inspection holes, trim the wheel fairings to prevent them from holding fluids, install temperature indicator stickers on the brake calipers, and insert Revision A6 (with revised preflight walk-around, a limitation on the engine speed used to taxi, and brake inspection/servicing intervals) into the Pilot's Operating Handbook (POH). This AD results from several reports of airplanes experiencing brake fires and two airplanes losing directional control. We are issuing this AD to detect, correct, and prevent overheating damage to the brake caliper piston O-ring seals, which could result in leakage of brake hydraulic fluid. Consequently, this could lead to the loss of braking with loss of airplane directional control or brake fire.

DATES: This AD becomes effective on November 17, 2006.

As of November 17, 2006, the Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulation.

ADDRESSES: To get the service information identified in this AD, contact Cirrus Design Corporation, 4515 Taylor Circle, Duluth, Minnesota 55811; telephone: (218) 727-2737 or on the Internet at <http://www.cirrusdesign.com>.

To view the AD docket, go to the Docket Management Facility; U.S. Department of Transportation, 400 Seventh Street, SW., Nassif Building, Room PL-401, Washington, DC 20590-001 or on the Internet at <http://dms.dot.gov>. The docket number is Docket No. FAA-2006-24010; Directorate Identifier 2006-CE-14-AD.

FOR FURTHER INFORMATION CONTACT: Wess Rouse, Aerospace Engineer, ACE-117C, Chicago Aircraft Certification Office, 2300 East Devon Avenue, Room 107, Des Plaines, Illinois 60018; telephone: (847) 294-8113; facsimile: (847) 294-7834.

SUPPLEMENTARY INFORMATION:

Discussion

On May 1, 2006, 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 CDC Models SR20 and SR22 airplanes. This proposal was published in the Federal Register as a notice of proposed rulemaking (NPRM) on May 8, 2006 (71 FR 26707). The NPRM proposed to require you to check the maintenance records to determine whether the brake caliper piston O-ring seals were replaced at the last annual or 100-hour inspection. If the O-rings were not replaced, this proposed AD would require you to replace the O-ring seals with new seals or replace brake calipers. This proposed AD would also require you to modify the main landing gear wheel fairings to add temperature indicator sticker inspection holes, trim the wheel fairings to prevent them from holding fluids, install temperature indicator stickers on the brake calipers, and insert Revision A6 (with revised preflight walk-around and taxi procedures) into the Pilot's Operating Handbook (POH).

Comments

We provided the public the opportunity to participate in developing this AD. The following presents the comment received on the proposal and FAA's response to the comment:

Comment Issue: Increase Emphasis on the Operational Aspects of Overheating of the Brakes

CDC points out that the brakes, as delivered, meet certification requirements, and when properly used, will provide the expected performance and service. We conclude that CDC believes that the AD overemphasizes the required maintenance actions and hardware upgrades, without explaining the operational details that will prevent brake caliper O-ring damage.

Our intent is that the AD stress continued operational safety by removing and replacing potentially damaged O-rings or replacement of existing brake calipers with new heavier duty calipers (with new O-rings installed), adding brake caliper temperature stickers with a new inspection hole in the wheel fairings (to detect potential O-ring damage before brake fluid leaks develop), and adding a revision to the Pilot's Operating Handbook (to emphasize brake preflight inspections, checking the color of the brake caliper temperature sticker for evidence of brake caliper overheating, and limiting the engine RPM during taxi to 1000 RPM).

We agree that the operational change to limit engine RPM during taxi (found in Revision A6 to the POH) is the most important consideration toward preventing brake caliper O-ring seal damage. This AD is requiring this action so we are not changing the AD as a result of this comment.

Conclusion

We have carefully reviewed the available data and determined that air safety and the public interest require adopting the AD as proposed except for minor editorial corrections. We have determined that these minor corrections:

- Are consistent with 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.

Costs of Compliance

We estimate that this AD affects 2,135 airplanes in the U.S. registry.

We estimate the following costs to do the check of maintenance records to determine whether the brake caliper piston O-ring seals were replaced at the last annual or 100-hour inspection:

Labor cost	Parts cost	Total cost per airplane	Total cost on U.S. operators
1 work-hour x \$80 = \$80	Not Applicable	\$80	\$170,800

We estimate the following costs to install any necessary O-ring seals that would be required based on the results of this check of maintenance records. We have no way of determining the number of airplanes that may need this seal installation:

Labor cost	Parts cost	Total cost per airplane
4 work-hours x \$80 = \$320	\$8	\$328

We estimate the following costs to replace any brake calipers on Model SR20 airplanes, serial numbers (S/Ns) 1005 through 1194, that would be required based on the results of this check of maintenance records. We have no way of determining the number of these Model SR20 airplanes that may need to replace brake calipers:

Labor cost	Parts cost	Total cost per airplane
12 work-hours x \$80 = \$960	\$1,167	\$2,127

We estimate the following costs to replace any brake calipers on Model SR20 airplanes, S/Ns 1195 through 1600, that would be required based on the results of this check of maintenance records. We have no way of determining the number of these Model SR20 airplanes that may need to replace brake calipers:

Labor cost	Parts cost	Total cost per airplane
8 work-hours x \$80 = \$640	\$1,167	\$1,807

We estimate the following costs to replace any brake calipers on Model SR22 airplanes that would be required based on the results of this check of maintenance records. We have no way of determining the number of Model SR22 airplanes that may need to replace brake calipers:

Labor cost	Parts cost	Total cost per airplane
5 work-hours x \$80 = \$400	\$845	\$1,245

We estimate the following costs to do the modification of the MLG wheel fairings to add the temperature indicator sticker inspection holes, trim the wheel fairings to prevent them from holding fluids, and install the temperature indicator sticker on the brake calipers:

Labor cost	Parts cost	Total cost per airplane	Total cost on U.S. operators
2 work-hours x \$80 = \$160	\$2	\$162	\$345,870

The CDC has indicated that CDC will provide warranty credit as stated in the service information for modifying the MLG wheel fairings by adding the temperature indicator sticker inspection holes, trimming the wheel fairings to prevent them from holding fluids, and installing the temperature indicator sticker on the brake calipers.

We estimate the following costs to do the insertion of Revision A6 into the POH:

Labor cost	Parts cost	Total cost per airplane	Total cost on U.S. operators
1 work-hour x \$80	Not Applicable	\$80	\$170,800

Authority for This Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106 describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this AD.

Regulatory Findings

We have determined that this AD will not have federalism implications under Executive Order 13132. This AD 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.

For the reasons discussed above, I certify that this AD:

1. Is not a "significant regulatory action" under Executive Order 12866;
2. Is not a "significant rule" under the 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.

We prepared a summary of the costs to comply with this AD (and other information as included in the Regulatory Evaluation) and placed it in the AD Docket. You may get a copy of this summary

by sending a request to us at the address listed under ADDRESSES. Include "Docket No. FAA-2006-24010; Directorate Identifier 2006-CE-14-AD" in your request.

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.

§ 39.13 [Amended]

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

AIRWORTHINESS DIRECTIVE

www.faa.gov/aircraft/safety/alerts/
www.gpoaccess.gov/fr/advanced.html

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



2006-21-03 Cirrus Design Corporation: Amendment 39-14787; Docket No. Docket No. FAA-2006-24010; Directorate Identifier 2006-CE-14-AD.

Effective Date

- (a) This AD becomes effective on November 17, 2006.

Affected ADs

- (b) None.

Applicability

(c) This AD applies to the following airplane models and serial numbers (S/N) that are certificated in any category:

- (1) Group 1: Model SR20 Airplanes, S/N 1005 through 1600.
- (2) Group 2: Model SR22 Airplanes, S/N 0002 through 1739.
- (3) Group 3: Model SR20 Airplanes, S/N 1005 through 1592.
- (4) Group 4: Model SR22 Airplanes, S/N 0002 through 1727.

Unsafe Condition

(d) This AD results from several reports of airplanes that experienced brake fires and two airplanes that lost directional control. The actions specified in this AD are intended to detect, correct, and prevent overheating damage to the brake caliper piston O-ring seals, which could result in leakage of brake hydraulic fluid. Consequently, this could lead to the loss of braking with loss of airplane directional control or brake fire.

Compliance

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

Table 1.—Actions/Compliance/Procedures

Actions	Compliance	Procedures
<p>(1) <i>For Group 1 and Group 2 airplanes:</i> Check the maintenance records to determine whether the brake caliper piston O-ring seals were replaced at the last annual or 100-hour inspection.</p>	<p>Within 50 hours time-in-service (TIS) after November 17, 2006 (the effective date of this AD), unless already done.</p>	<p>No special procedures necessary to check the maintenance records. 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) may make this check. You must make an entry into the airplane records that shows compliance with this portion of the AD in accordance with section 43.9 of the Federal Aviation Regulations (14 CFR 43.9).</p>
<p>(2) <i>For Group 1 and Group 2 airplanes:</i> If you find as a result of the check required by paragraph (e)(1) of this AD that there is no record of the replacement of brake caliper piston O-ring seals at the last annual or 100-hour inspection, then do the following:</p> <p>(i) Replace the O-ring seals with new O-ring seals or</p> <p>(ii) Replace old brake calipers with new brake calipers.</p>	<p>Before further flight after the check required by paragraph (e)(1) of this AD.</p>	<p>For the replacement, follow the brake maintenance procedures in Section 32–42 of the SR20 or SR22 Aircraft Maintenance Manual. For the replacement of the new brake calipers, follow Cirrus Design Corporation Service Bulletin SB 2X–32–13 R1, Issued: December 15, 2005, Revised May 16, 2006.</p>
<p>(3) <i>For Group 3 and Group 4 airplanes:</i></p> <p>(i) Modify the main landing gear (MLG) wheel fairings to add temperature indicator sticker inspection holes and trim the wheel fairings to prevent them from holding fluids; and</p> <p>(ii) Install a temperature indicator sticker on the brake calipers.</p>	<p>Do the modification within 50 hours TIS after November 17, 2006 (the effective date of this AD), unless already done. Do the temperature indicator sticker installation within 50 hours TIS after November 17, 2006 (the effective date of this AD), unless already done, and thereafter before further flight anytime you have the O-ring seals replaced due to overheating of the brake assembly (temperature indicator sticker turned black).</p>	<p>Follow Cirrus Design Corporation Service Bulletin SB 2X–32–14 R1, Issued: January 18, 2006, Revised: February 17, 2006.</p>

<p>(4) For all airplanes:</p> <p>Insert the appropriate Revision A6 part number (P/N) into the Pilot's Operating Handbook (POH), as presented in TABLE 2.—REVISION A6 TO THE PILOT'S OPERATING HANDBOOK, in paragraph (f) of this AD.</p>	<p>Within 50 hours TIS after November 17, 2006 (the effective date of this AD), unless already done.</p>	<p>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) may insert the information into the POH as specified in paragraph (e)(4) of this AD. Make an entry into the airplane maintenance records showing compliance with this portion of the AD in accordance with section 43.9 of the Federal Aviation Regulations (14 CFR 43.9).</p>
<p>(5) For Group 3 and Group 4 airplanes:</p> <p>(i) Do not install any MLG fairings without also doing the modifications required by paragraph (e)(3)(i) of this AD; and</p> <p>(ii) Do not replace any brake calipers without also installing the temperature indicator sticker required by paragraph (e)(3)(ii) of this AD.</p>	<p>As of November 17, 2006 (the effective date of this AD).</p>	<p>Follow Cirrus Design Corporation Service Bulletin SB 2X-32-14 R1, Issued: January 18, 2006, Revised: February 17, 2006.</p>

(f) The following table specifies the POH Revision A6 part number as required in paragraph (e)(4) of this AD:

Table 2.—Revision A6 to the Pilot's Operating Handbook

Affected airplanes	Model SR20 or SR22 airplane POH P/N	Date FAA-approved
(1) Model SR20, S/N 1148 through 1267	11934-002	January 18, 2006.
(2) Model SR20, S/N 1005 through 1147 that have the 3,000-pound gross weight modification following Cirrus Design Corporation Service Bulletin SB 20-01-00, Issued: February 25, 2003.	11934-002	January 18, 2006.
(3) SR20, S/N 1268 through 1739	11934-003	January 18, 2006.
(4) SR22, S/N 002 through 1739	13772-001	January 18, 2006.

Alternative Methods of Compliance (AMOCs)

(g) The Manager, Chicago Aircraft Certification Office (ACO), ATTN: Wess Rouse, Aerospace Engineer, FAA, ACE-117C, Chicago ACO, 2300 East Devon Avenue, Room 107, Des Plaines, Illinois 60018; telephone: (847) 294-8113; facsimile: (847) 294-7834, has the authority to approve alternative methods of compliance for this AD, if requested using the procedures found in 14 CFR 39.19.

Material Incorporated by Reference

(h) You must do the actions required by this AD following the instructions in Cirrus Design Corporation Service Bulletin SB 2X-32-13 R1, Issued: December 15, 2005, Revised May 16, 2006; and Cirrus Design Corporation Service Bulletin SB 2X-32-14 R1, Issued: January 18, 2006, Revised: February 17, 2006. The Director of the Federal Register approved the incorporation by reference of this service bulletin in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. To get a copy of this service information, contact Cirrus Design Corporation, 4515 Taylor Circle, Duluth, Minnesota 55811; telephone: (218) 727-2737 or on the Internet at <http://www.cirrusdesign.com>. To review copies of this service information, go to the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, go to: http://www.archives.gov/federal-register/code_of_federal_regulations/ibr_locations.html or call (202) 741-6030. To view the AD docket, go to the Docket Management Facility; U.S. Department of Transportation, 400 Seventh Street, SW., Nassif Building, Room PL-401, Washington, DC 20590-001 or on the Internet at <http://dms.dot.gov>. The docket number is Docket No. FAA-2006-24010; Directorate Identifier 2006-CE-14-AD.

Issued in Kansas City, Missouri, on October 3, 2006.

Kim Smith,

Manager, Small Airplane Directorate, Aircraft Certification Service.

[FR Doc. E6-16741 Filed 10-12-06; 8:45 am]