

may view any comments at this location between 8 a.m. and 4 p.m., Monday through Friday, except Federal holidays. You may also send comments electronically to the following address: 9-ACE-7-Docket@faa.gov. Comments sent electronically must contain "Docket No. 2002-CE-57-AD" in the subject line. If you send comments electronically as attached electronic files, the files must be formatted in Microsoft Word 97 for Windows or ASCII text.

You may get service information that applies to this proposed AD from the Cessna Aircraft Company, Product Support, P.O. Box 7706, Wichita, Kansas 67277; telephone: (316) 517-5800; facsimile: (316) 942-9006. You may also view this information at the Rules Docket at the address above.

FOR FURTHER INFORMATION CONTACT: Paul Nguyen, Aerospace Engineer, FAA, Wichita Aircraft Certification Office, 1801 Airport Road, Mid-Continent Airport, Wichita, Kansas 67209; telephone: (316) 946-4125; facsimile: (316) 946-4107.

SUPPLEMENTARY INFORMATION:

Comments Invited

How do I comment on this proposed AD? The FAA invites comments on this proposed rule. You may submit whatever written data, views, or arguments you choose. You need to include the rule's docket number and submit your comments to the address specified under the caption **ADDRESSES**. We will consider all comments received on or before the closing date. We may amend this proposed rule in light of comments received. Factual information that supports your ideas and suggestions is extremely helpful in evaluating the effectiveness of this proposed AD action and determining whether we need to take additional rulemaking action.

Are there any specific portions of this proposed AD I should pay attention to? The FAA specifically invites comments on the overall regulatory, economic, environmental, and energy aspects of this proposed rule that might suggest a need to modify the rule. You may view all comments we receive before and after the closing date of the rule in the Rules Docket. We will file a report in the Rules Docket that summarizes each contact we have with the public that concerns the substantive parts of this proposed AD.

How can I be sure FAA receives my comment? If you want FAA to acknowledge the receipt of your mailed comments, you must include a self-addressed, stamped postcard. On the postcard, write "Comments to Docket

No. 2002-CE-57-AD." We will date stamp and mail the postcard back to you.

Discussion

Has FAA taken any action to this point? Reports of fatigue cracks on Cessna 401, 402, and 411 series airplanes caused FAA to take AD action (AD 79-10-15 R2, Amendment 39-3711) to require repetitive inspections of the right and left wing spar lower cap areas for fatigue cracks and to require wing spar cap repair or replacement as necessary.

Cessna Models 402C and 414A airplanes incorporate a similar design to those airplanes affected by AD 79-10-15 R2. We issued AD 2000-23-01, Amendment 39-11971 (65 FR 70645, November 27, 2000), to require repetitive inspections of the forward, aft, and auxiliary wing spars for cracks on Cessna Models 402C airplanes with repair or replacement as necessary.

There is no similar AD action addressing the Model 414A airplanes.

What has happened since AD 79-10-15 R2 and AD 2000-23-01 to initiate this proposed action? Since issuance of AD 79-10-15 and AD 2000-23-01, Cessna has analyzed the wing, including fatigue and crack growth analyses, on the affected airplanes. Analysis included:

- A determination of the probable location and modes of damage based on analytical results, available test data, and service information;
- Classical fatigue analyses;
- Crack growth and residual strength analyses including use of linear elastic fracture mechanics methods;
- Full-scale ground testing to validate analytical models; and
- A flight strain survey to develop stress spectra used in the analyses.

The inspections required by AD 79-10-15 R2 in accordance with Cessna Service Bulletin ME79-16, Revision 3, are accomplished using a surface eddy current inspection method.

Based on the analysis, Cessna has found that the eddy current method will not find the crack until it is .03 inch longer than the critical crack length. When the crack reaches the critical length, it is not reliably detectable because it is under the head of the fastener. Once the main spar cap is severed, the remaining structure will no longer meet the residual strength requirements. Wing separation could then occur under loading conditions significantly less than those established for the design limit load.

Cessna reported only one instance where cracks were detected using the

nondestructive inspection (NDI) eddy current procedure. There are other reported instances where cracks were detected visually in the wheel well area on the aft flange. The problem with visual inspections is the access doubler flanges cover a large percentage of the forward spar flange. This limits the effectiveness of the visual inspections.

To meet industry NDI standards, cracks need to be found on Cessna Models 402C and 414A airplanes through NDI inspection methods with a 90-percent probability of detection at a 95-percent confidence level.

Cessna's analysis indicates that the probability and confidence levels are not being met.

Is there service information that applies to this subject? Cessna has issued Service Bulletin MEB02-05 and Cessna Service Kit SK402-47, both dated June 24, 2002. This service information includes procedures for inspecting and modifying the lower wing spar caps.

The FAA's Determination and an Explanation of the Provisions of this Proposed AD

What has FAA decided? After examining the circumstances and reviewing all available information related to the incidents described above, we have determined that:

- Cessna's analysis of the problems with the eddy current inspection on the wing spar cap area on the Cessna Models 401, 401A, 401B, 402A, 402B, 411, and 411A airplane is valid;
- The unsafe condition referenced in this document also exists or could develop on Cessna Models 402C and 414A airplanes that are the same type design;
- The actions specified in the previously-referenced service information should be accomplished on the affected airplanes; and
- AD action should be taken in order to correct this unsafe condition.

What would this proposed AD require? This proposed AD would supersede AD 2000-23-01 with a new AD that would apply to Cessna Models 402C and 414A airplanes and would require you to:

- Inspect the wing spar caps for fatigue cracks;
- Repair or replace the wing spar caps as necessary; and
- Incorporate a spar strap modification on each wing spar.

How does the revision to 14 CFR part 39 affect this proposed AD? On July 10, 2002, FAA published a new version of 14 CFR part 39 (67 FR 47997, July 22, 2002), which governs FAA's AD system.