

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.

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.

What Are the Consequences if the Condition Is Not Corrected?

This condition, if not corrected could result in wing spar cap failure due to undetected fatigue cracks. Such failure could result in loss of a wing with consequent loss of airplane control.

Has FAA Taken Any Action to This Point?

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 all Cessna Models 402C and 414A airplanes. This proposal was published in the **Federal Register** as a notice of proposed rulemaking (NPRM) on May 15, 2003 (68 FR 26244). The NPRM proposed to 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.

You would have to accomplish the proposed actions in accordance with Cessna Service Bulletin MEB02-05 and Cessna Service Kit SK402-47, both dated June 24, 2002.

Was the Public Invited To Comment?

The FAA encouraged interested persons to participate in the making of this amendment. During the comment period, we received requests to extend the comment period. Consequently, we extended the comment period from August 8, 2003, to September 8, 2003.

We have received an additional comment to extend the comment period an additional 6 months action in order to allow more time to evaluate the impact of the actions of the proposed AD. We have evaluated this request and determined the following:

- An additional 60 days is a more appropriate time than 6 months; and
- Instead of extending the comment period, we will need to reopen the comment period because the comment period ending date has passed.

The Supplemental NPRM

The FAA's Determination?

We have determined that an additional 60 days (total of 150 days) is a reasonable time period to allow the public to comment on the proposed AD. Therefore, we are issuing a supplemental NPRM and reopening the comment period to allow the public additional time to comment.

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. This regulation now includes material that relate to special flight permits, alternative methods of compliance, and altered products. This material previously was included in each individual AD. Since this material is included in 14 CFR part 39, we will not include it in future AD actions.

Cost Impact

How Many Airplanes Would This Proposed AD Impact?

We estimate that this proposed AD affects 656 airplanes in the U.S. registry.

What Would Be the Cost Impact of This Proposed AD on Owners/Operators of the Affected Airplanes?

We estimate the following costs to accomplish the proposed modification and initial inspection:

Labor cost	Parts cost	Total cost per airplane	Total cost on U.S. operators
485 workhours × \$60 per hour = \$29,100 per airplane.	\$14,000 per airplane.	\$29,100 + \$14,000 = \$43,100 airplane.	\$43,100 × 656 = \$28,273,600.

The above figures do not take into account the cost of repetitive inspections. The FAA does not have any way of determining the number of repetitive inspections each owner/operator would incur during the operating life of the affected airplanes.

Regulatory Impact

Would This Proposed AD Impact Various Entities?

The regulations proposed herein would 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. Therefore, it is determined that this proposed rule would not have federalism implications under Executive Order 13132.