

[Federal Register: December 9, 2004 (Volume 69, Number 236)]
[Rules and Regulations]
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[DOCID:fr09de04-4]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 98-CE-64-AD; Amendment 39-13891; AD 2004-25-04]

RIN 2120-AA64

Airworthiness Directives; Mooney Aircraft Corporation Models M20B, M20C, M20D, M20E, M20F, M20G, and M20J Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA adopts a new airworthiness directive (AD) for all Mooney Aircraft Corporation (Mooney) Models M20B, M20C, M20D, M20E, M20F, M20G, and M20J airplanes equipped with an O & N Bladder Fuel Cell installed per Supplemental Type Certificate (STC) SA2277CE or STC SA2350CE. The STCs apply to all the affected airplane models except for Model M20B airplanes. Model M20B airplanes could have one of the STCs incorporated by field approval. This AD requires you to inspect the drain valve to assure that it is inserted fully into the drain nipple and modify any drain valve found not to be inserted fully into the drain nipple. This AD also requires certain modifications and replacements on the affected fuel cells to reduce the chances of water/ice contamination. This AD is the result of reports of rainwater entering the fuel bladders and the information from the subsequent evaluation of the fuel systems. The actions specified by this AD are intended to assist in preventing water from entering the fuel bladders, which could result in rough engine operation or complete loss of engine power.

DATES: This AD becomes effective on January 21, 2005.

As of January 21, 2005, the Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulation.

ADDRESSES: You may get the service information identified in this AD from O & N Aircraft Modifications Inc., 210 Windsock Lane, Seamans Airport, Factoryville, PA 18419; telephone: (717) 945-3769; facsimile: (717) 945-7282.

You may view the AD docket at FAA, Central Region, Office of the Regional Counsel, Attention: Rules Docket No. 98-CE-64-AD, 901 Locust, Room 506, Kansas City, Missouri 64106. Office hours are 8 a.m. to 4 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Paul O. Pendleton, Aerospace Engineer, FAA, Wichita Aircraft Certification Office, 1801 Airport Road, Room 100, Mid-Continent Airport, Wichita, Kansas 67209; telephone: (316) 946-4143; facsimile: (316) 946-4107.

SUPPLEMENTARY INFORMATION:

Discussion

What events have caused this AD? The FAA has received a report of water being trapped in the fuel bladders on Mooney Models M20C, M20D, M20E, M20F, M20G, and M20J airplanes that are equipped with an O & N Bladder Fuel Cell installed per Supplemental Type Certificate (STC) SA2277CE or STC SA2350CE. The STCs apply to all of the above-referenced airplane models except for the Mooney Model M20B airplanes; the Model M20B airplanes could have one of the STCs incorporated by field approval.

Evaluation of this problem shows that improper installation of the fuel bladder drains and fuel caps could allow rainwater to enter the fuel bladders if the fuel cap was defective.

The evaluation also revealed additional installation problems and design deficiencies, including:

- Inadequate installation of the foam filler that supports the fuel bladders;
- Inadequate engine crankcase breather vent and primary fuel vent ice protection; and
- Fuel caps that have the sealing surface below the fuel tank opening.

What is the potential impact if FAA took no action? If not prevented, water entering the fuel bladders could result in rough engine operation or complete loss of engine power.

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 Mooney Aircraft Corporation (Mooney) Models M20B, M20C, M20D, M20E, M20F, M20G, and M20J airplanes equipped with an O & N Bladder Fuel Cell installed per Supplemental Type Certificate (STC) SA2277CE or STC SA2350CE. This proposal was published in the Federal Register as a notice of proposed rulemaking (NPRM) on October 9, 1998 (63 FR 54401). The NPRM proposed to require you to inspect the drain valve to assure that it was inserted fully into the drain nipple and modify any drain valve found not fully inserted into the drain nipple. The NPRM also proposed to require you to incorporate the design changes specified in O & N Aircraft Modifications Inc. Mandatory Service Bulletin No. ON-100, dated February 1, 1998.

Comments

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

Comment Issue No. 1: Remove the Requirement To Replace the Flush Style Fuel Cap With a Raised Style Fuel Cap

What is the commenter's concern? The FAA received 18 comments with each commenter stating that requiring replacement of the flush style fuel caps with raised style fuel caps is unnecessary.

Most commenters, which are owners and operators of the affected model airplanes, state that they have never experienced getting a single drop of water in the fuel tanks with the O&N flush style fuel caps. Many of these airplanes are washed frequently with high-pressure hoses and are parked outside in the rain, sleet, and snow.

The commenters express no problems with the flush style fuel caps because of proper maintenance and proper operating procedures.

Several commenters state that all high performance airplanes have flush style fuel caps. They further comment that, if the FAA wants these fuel caps replaced on the affected Mooney airplanes because they pose an unsafe condition, then the FAA should mandate this on all airplanes with flush style fuel caps.

The commenters also communicate that this replacement would cause a financial burden with no gain in safety.

The commenters want the fuel cap replacement requirement removed from the AD.

What is FAA's response to the concern? We are requiring you to replace the flush style fuel caps with raised style caps because the sealing surface of the flush style fuel caps is below the fuel tank opening.

However, based on the comments received, we have developed "Pilot Operating Procedures for Pre-flight Fuel System Check." Inserting these procedures into the Limitations Section of the FAA-approved Airplane Flight Manual (AFM) would serve as an alternative method of compliance (AMOC) for replacing the flush style fuel caps.

Based on these comments, we will change the final rule AD to incorporate these procedures as an AMOC to replacing the fuel caps.

Comment Issue No. 2: Revise or Remove the Proposed AD

What is the commenter's concern? The notice of proposed rulemaking (NPRM) states that improper installation of the fuel bladder drains and fuel caps could allow rainwater to enter the fuel bladders.

Several commenters do not feel they should be penalized because of improper installation of the fuel bladders and the flush fuel cap that an unauthorized independent fixed base operator did. The commenters express that no reported problems exist with water in the fuel system on O&N bladder systems installed at an authorized installation center.

Most commenters state that the proposed AD is unnecessary, could cause significant damage to the existing fuel bladder tanks, and could cause a financial burden to the owners and operators with no gain in safety.

These commenters want the proposed AD withdrawn.

One commenter wants the proposed AD revised to include a proper inspection by licensed FAA personnel to prevent the reoccurrence of any improper installation.

Several commenters want the applicability of the AD revised to exclude airplanes that had the O&N bladder system installed at an authorized O&N facility.

What is FAA's response to the concern? The FAA does not concur that the AD is not necessary. As earlier stated, our evaluation of the problem reveals installation and design deficiencies on the fuel bladder drains and fuel caps. Our determination on this issue is that the actions of the AD are necessary to ensure that the unsafe condition does not continue to exist or develop on the affected type design airplanes.

As stated before, the incorporation of the "Pilot Operating Procedures for Pre-flight Fuel System Check" as an AMOC for the fuel cap replacement requirement will alleviate a percentage of the commenters' concerns.

Comment Issue No. 3: Remove Requirement To Install an Anti-Ice Mast

What is the commenter's concern? One commenter states these airplanes are not certificated to fly into known icing conditions.

Another commenter states that, since anti-icing masts are not normally found on general aviation aircraft, there is no reason to add it to the affected Mooney airplanes. The commenter further expresses that the anti-ice mast is unproven and untested on Mooney airplanes and could actually impede vent performance under normal and icing conditions. The commenter also states that, if the

FAA believes that the risk of vent icing is inordinately high, the FAA should then issue an AD for all registered aircraft.

The commenters want the final rule AD revised to remove the requirement to install an anti-ice mast forward of the vent tubes.

What is FAA's response to the concern? The FAA does not concur. As stated earlier, this is one of the areas where we found installation or design deficiencies that needed action to remove an unsafe condition. Therefore, we have determined that this portion of the AD is valid and necessary to address the unsafe condition.

We are not changing the final rule AD action based on these comments.

Comment Issue No. 4: Crank Case Vent Hole Is Unrelated to the O&N Bladder Fuel Cells

What is the commenter's concern? The commenter states that, if Mooney airplanes with the bladder fuel cells installed need to have this vent hole drilled in the engine's crankcase breathers, the FAA should then include all piston-powered airplanes.

What is FAA's response to the concern? To this date, FAA has not received data indicating that the condition exists on any other installations other the Mooney airplanes with the O&N fuel cap installation. If our continued evaluation reveals such a condition, we will consider further rulemaking action on other type design aircraft.

We are not changing the final rule AD action based on these comments.

Conclusion

What is FAA's final determination on this issue? We have carefully reviewed the available data and determined that air safety and the public interest require adopting the AD as proposed except for the changes discussed above and minor editorial corrections. We have determined that these changes and 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.

Changes to 14 CFR Part 39–Effect on the AD

How does the revision to 14 CFR part 39 affect this AD? On July 10, 2002, the FAA published a new version of 14 CFR part 39 (67 FR 47997, July 22, 2002), which governs the FAA's AD system. This regulation now includes material that relates to altered products, special flight permits, and alternative methods of compliance. 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.

Costs of Compliance

How many airplanes does this AD impact? We estimate that this AD affects 300 airplanes in the U.S. registry.

What is the cost impact of this AD on owners/operators of the affected airplanes? We estimate the following costs to accomplish the inspection and modification:

Labor cost	Parts cost	Total cost per airplane	Total cost on U.S. operations
8 work hours × \$65 per hour = \$520	\$200	\$520 + \$200 = \$750	\$750 × 300 = \$216,000.

Authority for This Rulemaking

What authority does FAA have for issuing this rulemaking action? 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

Will this AD impact various entities? 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.

Will this AD involve a significant rule or regulatory action? 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 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 "AD Docket No. 98-CE-64-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



Aircraft Certification Service
Washington, DC

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

We post ADs on the internet at "www.faa.gov"

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

2004-25-04 Mooney Aircraft Corporation: Amendment 39-13891; Docket No. 98-CE-64-AD.

When Does This AD Become Effective?

- (a) This AD becomes effective on January 21, 2005.

What Other ADs Are Affected By This Action?

- (b) None.

What Airplanes Are Affected by This AD?

(c) This AD affects Models M20C, M20D, M20E, M20F, M20G, and M20J airplanes, all serial numbers, that are:

- (1) certificated in any category;
- (2) equipped with an O & N Bladder Fuel Cell installed per Supplemental Type Certificate (STC) SA2277CE or STC SA2350CE; and
- (3) This AD affects Model M20B airplanes, all serial numbers, that are certificated in any category and have any of the STCs referenced in paragraph (c)(2) incorporated by field approval.

What Is the Unsafe Condition Presented in This AD?

(d) This AD is the result of reports of rain water entering the fuel bladders and the information from the subsequent evaluation of the fuel systems. The actions specified in this AD are intended to assist in preventing water from entering the fuel bladders, which could result in rough engine operation or complete loss of engine power.

What Must I Do To Address This Problem?

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

Actions	Compliance	Procedures
(1) On both the left and right wing, inspect the drain valve to assure that it was inserted fully into the drain nipple	Within the next 12 months after January 21, 2005 (the effective date of this AD), unless already done (see Note 1)	Follow O & N Aircraft Modifications Inc. Mandatory Service Bulletin No. ON-100, dated February 1, 1998.

(2) Modify any drain valve found not to be inserted fully into the drain nipple	Prior to further flight after the inspection required in paragraph (e)(1) of this AD, unless already done (see Note 1).	Follow O & N Aircraft Modifications Inc. Mandatory Service Bulletin No. ON-100, dated February 1, 1998.
(3) On both the left and right wing do the following: (i) Install a foam wedge to reduce the amount of trapped fluids in the center fuel cell; (ii) Install an anti-ice mast forward of the vent tubes to prevent icing of the fuel tank vents; (iii) Drill a vent hole to prevent icing of the engine's crankcase breathers; and (iv) Replace the flush style fuel caps and adapters with raised style caps and adapters. Follow the instructions in paragraph (f) of this AD as an alternative method of compliance for replacing the flush style fuel caps	Within the next 12 months after January 21, 2005 (the effective date of this AD), unless already done (see Note 1).	Follow O & N Aircraft Modifications Inc. Mandatory Service Bulletin No. ON-100, dated February 1, 1998.

Note 1: All kits installed by (or obtained from) O&N Aircraft Modifications Inc. after February 1, 1998, incorporate the actions of this AD. If you have one of these kits installed, you may take "unless already done" credit for the actions of this AD.

What Is the Alternate Method of Compliance (AMOC) for Replacing the Flush Style Fuel Caps as Required in Paragraph (e)(3)(iv) of This AD?

(f) Instead of replacing the flush style fuel caps as required in paragraph (e)(3)(iv) of this AD, you may do a preflight fuel system check prior to each flight. To do this, you must insert the following "Pilot Operating Procedures–Preflight Fuel System Check" (paragraphs (f)(1), (f)(2), (f)(3), and (f)(4) of this AD) into the Limitation Section of the FAA-approved Airplane Flight Manual (AFM):

(1) Place a suitable container under the fuel strainer drain outlet prior to operating the strainer drain control for at least 4 seconds. Check strainer to ensure drain is closed.(2) Inspect the fluid drained from the fuel strainer and each wing tank quick drain for evidence of fuel contamination in the form of water, rust, sludge, ice, or any other substance not compatible with fuel. Also check for proper fuel grade before the first flight of each day and after each refueling. If any contamination is detected, comply with paragraph (f)(4) of this AD.

(3) Repeat steps in paragraph (f)(1) and (f)(2) of this AD on each wing tank quick drain.

(4) If the airplane has been exposed to rain, sleet, or snow, or if the wing fuel tanks or fuel strainer drains produce water or other contamination, you must purge the airplane fuel system to the extent necessary to ensure that there is no water, ice, or other fuel contamination.

May I Request Another AMOC for This AD?

(g) 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 (ACO), FAA. For information on any already

approved alternative methods of compliance, contact Paul O. Pendleton, Aerospace Engineer, FAA, Wichita ACO, 1801 Airport Road, Room 100, Mid-Continent Airport, Wichita, Kansas 67209; telephone: (316) 946-4143; facsimile: (316) 946-4107.

Does This AD Incorporate Any Material by Reference?

(h) You must do the actions required by this AD following the instructions in O & N Aircraft Modifications Inc. Mandatory Service Bulletin No. ON-100, dated February 1, 1998. 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. You may get a copy from O & N Aircraft Modifications Inc., 210 Windsock Lane, Seamans Airport, Factoryville, PA 18419. You may review copies at FAA, Central Region, Office of the Regional Counsel, 901 Locust, Room 506, Kansas City, Missouri 64106; or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call (202) 741-6030, or go to:

http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

Issued in Kansas City, Missouri, on December 1, 2004.

David A. Downey,

Acting Manager, Small Airplane Directorate, Aircraft Certification Service.

[FR Doc. 04-26915 Filed 12-8-04; 8:45 am]

BILLING CODE 4910-13-P