AIRCRAFT OWNERS AND PILOTS ASSOCIATION
421 Aviation Way • Frederick, MD 21701-4798
Telephone (301) 695-2000 • FAX (301) 695-2375
www.aopa.org

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Federal Aviation Administration
Central Region – Office of the Regional Counsel
ATTN: Rules Docket No. 2000-CE-26-AD
901 Locust, Room 506
Kansas City, Missouri 64106

Gentlemen,

The Aircraft Owners and Pilots Association (AOPA), representing the aviation interests of more than 370,000 pilots and aircraft owners, submits the following comments to Notice of Proposed Rulemaking (NPRM) 2000-CE-26-AD. The NPRM proposes an Airworthiness Directive (AD) to supercede an existing AD by mandating repetitive inspections for proper clearance between the map light switch and fuel lines and inspection for proper installation/condition of the map light switch cover. The proposed AD, applicable to certain model Cessna 172 airplanes, also requires replacement of damaged or otherwise deficient fuel lines and map light switch covers.

In this particular situation, AOPA recognizes that the potential for chafing between the fuel line and map light switch, electrical arching and the possible in-flight fire that may result, warrants airworthiness action. The proposed initial inspections for the presence/proper condition of the map light switch insulator, proper spacing between the fuel line and map light switch, and required replacement of damaged fuel lines and Nomex switch insulators are appropriate actions to take toward mitigating this concern. As the proposed initial inspections and part replacements (if necessary) are required within the next 100 hours time-in-service (TIS) or the next 12 months (whichever occurs first), any unsafe condition regarding this area of concern should be detected and eliminated through these actions.

In the NPRM, the FAA lists several reasons for including repetitive compliance actions in this AD. The FAA stated that the switch covers may 1) Deteriorate over time; 2) Receive damage from service activities; 3) Be left off after service activities; 4) Not be mounted properly; and 5) Not be used in after-market interior installations.

In their comments to this docket, the Cessna Pilots Association (CPA) directly addressed these stated reasons. AOPA agrees with and supports CPA's technical disposition of these assertions. However, for the sake of clarity, paraphrases of their conclusions on these points (referenced by number) are contained herein.

1) As the map light switch cover is made of Nomex material, it should have a useful life equal to or greater than the map light switch itself.
2) As with any item, accessory, part or component serviced by an FAA certified mechanic, if it is damaged it is the A&P/IA's regulatory obligation to repair or replace such part. Thus, this would be part of the normal duties and responsibilities of the mechanic rather than an AD action.
3) As stated in reason No. 2 above, it is the FAA certified mechanic's responsibility to ensure he/she has satisfactorily completed any work before deeming the aircraft airworthy and returning it to service. This includes ensuring that all required components and parts have been reinstalled in or on the aircraft.
4) Once again, it is the mechanics responsibility to ensure that the map light switch cover is installed properly. Advisory Circular AC43.13-1B sets forth the minimum clearance for spacing, and any maintenance action in this area must meet those requirements.
5) The standards for spacing set forth in AC 43.31-1B must be met by mechanics and repair stations completing interior installations. However, some of these actions may be accomplished by owners of affected airplanes under the authority of Appendix A of Part 43 paragraph (c) preventative maintenance. Unlike professional maintenance personnel, an aircraft owner may not be aware of the spacing requirements and the need to properly install the map light switch insulator. Thus, this FAA justification statement may have some limited merit.

Most of the stated justifications for recurring actions (as they are set forth in the proposed AD) fall within the normal scope of duties and responsibilities of an FAA certificated mechanic. Provided a mechanic adheres to regulatory edict and industry accepted maintenance practices when inspecting and/or repairing the map light switch and it's insulator, a one time inspection should preclude the possibility of a recurring problem. Thus, the repetitive inspection provisions of this NPRM may have little or no impact upon the actual continued airworthiness of affected airplanes.

In the NPRM, the FAA states, "chafing between the map light switch and the fuel line could continue to develop over the life of the affected airplanes." However, in the two accidents involving this matter that have occurred since the issuance of the original AD in 1980 (NTSB reports LAX99FA106 and CHI99LA188) ***both accident airplanes had recently undergone maintenance actions involving the map light switch and surrounding components/area.***

In the Chicago accident, the map light switch on the accident airplane had been replaced during a 100-hour inspection *six days prior* to the accident. In the Los Angeles accident, a mechanic removed the Royalite doorpost of the accident airplane to investigate why the map-light switch was inoperative. The mechanic stated that he reinstalled a washer and a nut, reconnected the map light switch to its terminal, and returned the aircraft to service. These actions were conducted just *two days prior* to the accident.

Both accident airplanes experienced in-flight fires that resulted in substantial aircraft damage, and in one case, two fatalities. In both cases, the mechanics reported that they inspected the aircraft per AD 80-04-08 and reinstalled the Nomex map light switch cover/insulator prior to returning the aircraft to service. However, the doorpost areas of the accident airplanes were consumed by fire to the extent that post-accident examination neither confirmed nor refuted the actual presence of the Nomex insulators.

Of particular interest is the fact that both accident airplanes had undergone maintenance actions on their respective map light switches just days before being consumed by fire. Although both mechanics report that they did reinstall the map light switch insulators prior to returning the aircraft to service, post accident evidence simply fails to substantiate that claim. Given the similarities between the area or origin of the fires (in the pilot side doorpost as reported by the pilots of both accident airplanes), and the extremely short amount of time that elapsed between the maintenance performed on and around the map light switches and the ensuing in-flight fires, the fact that both airplanes recently underwent maintenance obviously cannot be dismissed as coincidence.

However, as stated above, the five justifications provided in the NPRM as to why a lack of proper and complete maintenance should warrant AD action simply don't pass muster. Therefore, the recurring actions as specified in the NPRM may, for the reasons outlined above, present an undue burden upon owners and operators of affected airplanes with little or no appreciable safety benefit. Thus, AOPA recommends some revisions to the repetitive compliance provisions of NPRM 2000-CE-26-AD.

In their comments to this docket, CPA maintains that once the initial inspection (and any necessary part replacements) has been accomplished, a repeat inspection needn't be conducted until the map light switch is removed from the shield assembly (door post trim panel). AOPA agrees with and supports this assertion, as the insulator is secured via the switch retaining screws and will remain securely fastened in its proper position until the screws are removed. Thus, AOPA recommends that a repeat inspection of the map light switch insulator only be required in the event that the map light insulator is removed or replaced during the course of other routine maintenance.

Such an inspection requirement will significantly reduce the compliance burden (financial and otherwise) placed upon owners and operators of affected airplanes.

As the design of the map light switch and its insulator is such that it will remain in place and function properly until removed, such an inspection requirement should not adversely affect the continued airworthiness of affected airplanes.

Further, CPA's technical analysis of this issue has pointed out several discrepancies in the stated applicability of the proposed AD. AOPA agrees and recommends that the FAA include all models of Cessna 172s equipped with identical map light switch installations. Further, there is considerable question as to whether certain French Cessna F172N should be included in the AD, as it is included in the AD's referenced Cessna service bulletin SEB-001. AOPA asks that the FAA clarify whether or not this model is included in the AD.

Summary:

In conclusion, AOPA recognizes that chafing between the fuel line and map light switch can potentially result in a severe situation. In-flight fire is undoubtedly a circumstance no pilot wishes to face. AOPA feels that this particular circumstance does warrant airworthiness action. Thus, AOPA agrees with FAA that affected aircraft should undergo an *initial* inspection for installation and proper condition of the map light switch insulator, proper spacing between the fuel line and map light switch, and evidence of electrical arching/damage to the fuel line.

However, the facts as they have been presented point more toward improper maintenance than toward a wholesale defect or deficiency in the aircraft or its components. Simply stated, if the initial inspections have been completed properly, there is no justifiable reason why a repetitive inspection should uncover any damaged, missing, or otherwise deficient map light switch covers. Consequently, the repetitive inspection requirements as set forth in the NPRM will do little to increase the level of safety of the fleet, while substantially increasing the cost of compliance for owners and operators of affected airplanes. A repetitive inspection at annual intervals simply isn't necessary. Thus, AOPA recommends additional inspection of the map light and fuel line be required *only when the map light switch is removed from the shield assembly.*

Finally, AOPA recommends that the FAA directly address the issues of applicability presented by the Cessna Pilots Association.

Thank you for your time and consideration in this matter. AOPA stands ready to assist the FAA in reconsidering the provisions of this proposed AD. Should you require any further information, please contact[redacted]

Respectfully,

Andrew V. Cebula
Senior Vice President
Government and Technical Affairs

cc: Michael Gallagher – Manager, FAA Small Airplane Directorate