

AGING TRANSPORT SYSTEMS RULEMAKING ADVISORY COMMITTEE

**OFFICE OF THE CHAIRMAN
KENT V. HOLLINGER
10309 DUNN MEADOW ROAD
VIENNA, VA 22182-1325
(703) 757-3831**

January 21, 2005

Mr. Nicholas A. Sabatini
Associate Administrator
Regulation and Certification AVR-1
Federal Aviation Administration
Room 1000 West
800 Independence Ave. SW
Washington, DC 20591

Dear Mr. Sabatini:

At our January 2005 meeting, the Aging Transport Systems Rulemaking Advisory Committee (ATSRAC) reviewed the work of Harmonization Working Group #12 (HWG#12) regarding recommendations and considerations for the implementation of Arc Fault Circuit Breakers (AFCB) in commercial transport aircraft. The Committee agreed with the points on the attached page and voted unanimously to forward this information to the FAA for review.

Thank you for your consideration of these recommendations.

Sincerely,

Kent V. Hollinger
ATSRAC Chairman

Cc: James Ballough John Hickey
 Brenda Courtney Charles Huber

Attachment

AFCB Considerations (Single and 3-phase)

1. Strategies for Retrofit

a. Installation

- i. Grounding is required. Devices can use existing grounding practices
- ii. Some panel modification may be necessary depending upon AFCB design and should not affect the surrounding installation
- iii. Some AFCB designs are non-reversible and may include an indicator of proper grounding installation

b. Identification

- i. Not necessary from the front since flight crew should not reset
- ii. Back side differentiation required for recognition by installation and maintenance personnel
- iii. The software version must be identified either through the overall part number or a software date code.

c. Coordination

- i. Current SAE specification AS5692 does not address coordination, therefore tiered AFCB installations are not recommended until requirements are established

2. Operational and Maintenance Considerations

- a. Amendments to maintenance documents regarding installation and testing may be required
- b. Periodic cycling should be performed at the same intervals as for thermal breakers
- c. MSG-3 with EZAP should guide the inspection intervals and level of detail
- d. MSG-3 should guide any required periodic maintenance tasks
- e. If separate arc fault trip indication is available, then troubleshooting procedures should be revised to focus on wiring first. If no separate indication is available, then existing troubleshooting procedures should be used

3. Operational and Maintenance Training Areas

- a. Inform flight crew of the operational description of AFCBs
- b. Need to maintain good grounding and bonding contacts throughout aircraft life.

4. Advisory Materials Requiring Revision

- a. Will research these documents and provide a listing at the next ATSRAC meeting

5. Additional Recommendations

- a. Further study is needed on acceptable wire and collateral damage limits when protected by AFCB
- b. Continued research into portable test equipment is needed to assist in troubleshooting arc faults
- c. Further study is needed to quantify the costs and benefits of AFCB implementation