

AGING TRANSPORT SYSTEMS RULEMAKING ADVISORY COMMITTEE

Meeting Minutes

Date: January 19 - 20, 2000

Time: 9:00 a.m.

Place: Federal Aviation Administration
Bessie Coleman Conference Center
800 Independence Avenue, SW.
Washington, DC.

Administrative

Kent Hollinger, the Aging Transport Systems Rulemaking Advisory Committee (ATSRAC) Chair, called the meeting to order. After all participants introduced themselves, Mr. Hollinger turned the meeting over to Beth Erickson, AIR-1. Ms. Erickson noted the first anniversary of ATSRAC, thanked the committee for their work, and emphasized the need for ATSRAC to move ahead as quickly as possible. Ms. Erickson cited the need for the products developed by ATSRAC to be implemented so that real world benefits in the form of safety and public confidence could be realized. She pointed out that Congress, the Administrator, and the agency were looking for solid commitments with products. She arranged meetings with each working group chair to further discuss and emphasize the importance of their schedules.

Next, Mr. Stu Miller, Executive Director, read the Advisory Committee briefing statement.

Mr. Miller referred to the meeting agenda (Handout 1), then noted the passing of Craig Beard, the International Federation of Airworthiness representative. He then introduced Michael Peat, the new International Association of Machinists representative, and Tony Heather, the new CAA/JAA representative.

The minutes of the October 1999 meeting were discussed and approved with one minor typographical correction (Handout 2).

Kent Hollinger opened a discussion about the voting process and whether the latest version of the "Operating Procedures for the Aviation Rulemaking Advisory Committee" (referred to as the ARAC Green Book) should be used as a procedure document for ATSRAC. There was considerable discussion about consensus. Mr. Jim Shaw felt the ARAC Green Book was confusing in that the consensus discussion appeared to apply to working groups rather than to ATSRAC. There was general agreement that ATSRAC needs a procedure that would allow the committee to quickly move forward. It was also generally agreed that the consensus process outlined in the ARAC Green Book was set up the way it was to allow minority opinions to be documented. All agreed that it was acceptable to move forward with a minority opinion as long as the opinion was documented.

There was some discussion as to what level of agreement was enough to move forward. Levels of agreement from a simple majority to 80% were discussed, and several representatives mentioned that their definition of consensus was that everyone should be in agreement on a particular issue. Mr. Collier stated that the committee didn't have the time to obtain unanimity on

every decision. Bob Robeson noted that in ARAC proceedings, consensus is used as a tool for formulating recommendations that, when formally transmitted to the FAA, will move forward because the affected entities would have agreed on the substance of the recommendation. He further noted that it is important to give the FAA an idea of the level of support it can expect for a particular recommendation. In extreme cases, he stated, ARAC has responded to an FAA tasking by stating that no recommendation can be submitted because the committee could not reach consensus. In this case, a summary of the issues and the members' positions are documented and forwarded to the agency. Jim Shaw expressed the opinion that if the vote was nearly evenly split, the committee needed to do more work. Bill Schultz noted that the FAA could accept or reject a recommendation, regardless of the degree of consensus within the committee. The committee unanimously decided that it would use the consensus process outlined in the procedures document distributed to the committee (Handout 3) and that the chair should use a vote of 80% as a guideline for acceptance of a position so ATSRAC could move forward.

It was also noted that proxy votes were not specifically allowed nor disallowed; however, no one was in favor of allowing proxy votes.

The committee agreed in general with the provisions described in the ATSRAC Green Book, but tasked Mr. Miller with the following items:

- Making corrections to be identified by the committee;
- Deleting the revision marks; and
- Sending the document out as a final draft for committee approval.

ATSRAC Closed Session

Next, the advisory committee held a closed session to discuss selection of working group members. The criteria for selection of working group members were reviewed, followed by an explanation of how each working group chair had made recent selections. After reviewing each case, the advisory committee agreed with the selections made. The committee also reviewed the method of selection. It was decided that, in general, the procedure outlined in the ARAC Green Book should be used. This procedure calls for the working group members to be chosen by the working group chair, the ATSRAC chair, and the Executive Director. Mr. Miller was asked to add a sentence to the appropriate paragraph stating that standing ATSRAC members may review working group appointments. In general, however, the committee decided that the working group chair, the ATSRAC chair, and the Executive Director should be responsible for member selection.

Working Group 2 Report -- Task 3, Improvement of Maintenance Criteria

Mr. Tony Harbottle of Airbus presented the report on initial working group activities. The group spent their first meeting reviewing the tasking and identifying those areas in which they needed clarification. The report is attached (Handout 4). Several questions were raised by the working group and addressed by the committee. First, the working group recommended a change to task 3.1 to delete the reference to MSG-3 because they believed there might be more efficient ways to address older airplanes. Further, they recommended rewording the task to delete references to section 25.1309, design requirements, and substitute a more general reference to safety-related failure effects. After discussion, ATSRAC accepted the recommended changes. It was also noted that the means to enforce application of the new maintenance logic on in-service airplanes needs to be defined. Mr. Miller and Mr. Sobeck took an action item to investigate possible

approaches. It was also noted that the logic may need to be changed based on the availability of intrusive inspection data. This could affect working group schedules.

The second task was accepted with the addition of one subtask -- leakage of fluids.

The third task, to eliminate wire bundle contamination during maintenance, was accepted without change.

The fourth task, definition of acceptance criteria for corrosion of systems components, was deferred pending development of additional inspection data. The corrosion of dual load path design features would be evaluated by the working group, however.

The fifth task, component maintenance, was discussed, then deferred until Thursday, January 20, 2000, after the NASDAC presentation on problem reporting method improvements.

Working Group 4 Report, Task 5, Training

Mike Nancarrow gave the training working group report for Jeff Haber. Henry Dyck of Transport Canada noted the need to focus on wiring practices in general, not on the current airline practice of type training. It was also noted that OEM's should be included in the training survey being sent out.

Working Group 1 Report, Tasks 1 and 2, Non-intrusive Inspections and Service Data Review

Randy Pope presented the draft final report (Handout 5) of the non-intrusive inspection results and service data review. There was general discussion on data analysis. Many members felt the report should contain more data. Some members suggested that problems should be categorized in terms of the number of connector problems found, wire chafing problems found, and so on. Several members wanted to put all of the data in a database so that relationships could be studied. Tony Heather pointed out that nothing in the report showed a problem related to aging. Chris Smith noted that the absence of observation does not mean an absence of the phenomenon, and that the intrusive inspection might yield more information. It was noted by Mike Nancarrow that ATSRAC had assigned the inspections and data preparation to the working group, had listened to their interim reports, and had never indicated that the working group should alter their activities. He felt that the group's reduction and presentation of data should be trusted, and stated that further analysis should not be needed. Others pointed out that the program should be data driven, that the working group's data is a major portion of the data, and that the data should be preserved in the form of a database for future use. Kent Hollinger pointed out that the issue was not lack of trust; it was simply that ATSRAC, which had ultimate responsibility for working group products, had reviewed the report and had additional questions.

Ed Block stated that he had submitted a minority position, and did not agree with the comment in the report that discrepancies did not appear to be wire type dependent.

Several people expressed concern about the data being put in the public domain. Mr. Miller was asked if the data were currently in the public domain. Mr. Miller responded that the data was not available to the public until it was delivered to ATSRAC. His statement elicited a number of proposals aimed at keeping the data out of the public domain. It was suggested that the FAA hire a contractor to analyze the data so that it would not come into the FAA's possession. Finally, some of the members associated with the Department of Defense noted that they had not had an

opportunity to read the report and should have the opportunity to comment to the working group as working group members. It was then proposed that the working group modify the document at its next meeting, correct a number of minor problems, and send it to Kent Hollinger. Mr. Hollinger, in turn, would transmit the report to ATSRAC for an email vote. Specific revisions requested by the committee consisted of:

- Adding a summary table from Mr. Pope's presentation;
- Including the number of average work hours on different model inspections, where known;
- Adding a statement that the airplanes were opened up for heavy maintenance at the time of inspection;
- Describing the limitations of the data; and
- Adding a discussion of the types of problems observed to page 9 of the draft report.

The proposal was passed unanimously. A separate proposal to create a database resulted in a 5 to 4 vote. As it was late in the evening, several members had left, so it was decided to revisit the issue on Thursday, January 20, 2000.

The meeting adjourned at 6:15 p.m.

Mr. Hollinger reconvened the meeting at 8:30 a.m. on January 20, 2000.

The meeting began with a follow-on discussion from Wednesday, January 19, 2000, about putting the inspection data in a database. Jim Shaw proposed creating a database under the following conditions:

- The data should be de-identified;
- The data base should not be released;
- The analysis should be done by a contractor;
- The work should not be assigned to committee members;
- The FAA should fund the work for ATSRAC so that the ATSRAC members do not incur costs for creating the database; and
- The creation of the database and subsequent analysis should parallel working group activities, and not become added work for the group.

In the ensuing discussion, Norm Vincent stated that the database work should not slow down other work tasked to the working groups. Jim Shaw noted that the committee had already approved the summary report, subject to modifications, so the other work could move forward. Mike Nancarrow asked what the statement of work and the desired work output was to be. Bill Schultz noted that even if the data is de-identified, you run the risk of damaging the trust that enabled the data to be collected in the first place, in addition to damaging your ability to collect data in the future. He emphasized the need to be very careful about confidentiality. It was pointed out that the tasking calls for service bulletins to address key problems. The question was asked as to how this could be done without reopening the task after the data is analyzed. Jim Shaw asked if satisfying the airlines would answer this problem. After Mike Nancarrow asked once again what the statement of work and the desired output would be, Jim Shaw reiterated earlier discussion about data sorting for failure types, data links, etc. Mike Nancarrow replied that he thought Randy Pope could already answer these questions and that Spec. 117 had already identified these items. He stated again that he did not see the need for the database because the data had already been sorted by 60 experts in the working group.

Kent Hollinger then called for a vote on whether the FAA should undertake the analysis under the conditions stated above. Six voted for the proposal, and five voted against the proposal. The group decided no more progress could be made, and the issue should be forwarded to the FAA for a decision.

Continuing with the working group's report, the Service Bulletin recommendation was adopted with the understanding that a report on results would be presented in July 2000.

High Intensity Radiated Fields (HIRF) and Lightning Protection Report

The group moved on to a discussion of HIRF/lightning following a Boeing/Airbus report (Handout 6) by Tony Harbottle of Airbus. That report recommended removing the HIRF/lightning task from ATSRAC and assigning it to the manufacturers. The point was made that newer airplanes have appropriate maintenance programs in place for HIRF/lightning-related features in addition to an assurance program to ensure that maintenance activities meet the desired objectives. Older airplanes do not have the problem, leaving only 4 large transport types, of intermediate age, without maintenance and assurance programs. The manufacturers could address the issue of an assurance program for these models and examine whether or not additional specific maintenance activities would be required.

Henry Dyck asked if the work would be done by individual manufacturers or an existing committee working HIRF/lightning issues. The response was that the work would be done by the manufacturers with feedback to the authorities. There was some question as to why smaller aircraft were not also considered, citing a Fokker accident due to lightning. Tony Harbottle replied that the conclusions only apply to HIRF. Several people expressed a need to look past Boeing and Airbus to other airplanes. Mike Nancarrow remarked that the report had been done in keeping with an earlier decision to look at large turbofans. Mr. Miller reminded everyone that ATSRAC had decided at the first meeting to consider only large turbofans, over 20 years old, in the initial work as a way to limit the scope and meet schedules.

As the discussion continued, it became obvious that specific data from the manufacturer study would not be available for some time. Ed Block stated that the results of tasks 1 and 2 are being sent to the manufacturers, and now we seem to be turning HIRF over to them, too. He asked why we did not disband and turn the program over to the manufacturers. Tony Heather asked who the results of the study would be presented to. The conclusion was that operations and certification personnel from the authorities would have to be involved. Frank Fickeisen stated IFA has recommended that all manufacturers take action to invite major regional jet makers to participate. Dave Johnson noted that there were major HIRF problems on the F-16, and that a workshop on this issue was attended by many industry representatives in an attempt to understand the problem. He noted that many Boeing representatives attended the workshop and urged ATSRAC's Boeing and Airbus members to contact the attendees for additional information.

Jim Shaw moved to table the discussion until ATSRAC receives more information on what the manufacturers will be doing, understanding that it could take years to accomplish. In response, Tony Harbottle noted that this is also an agenda item for the ATA MSG-3 working group. Mike Nancarrow noted that they were still in the planning stage and asked what additional material Mr. Shaw wanted. Mr. Harbottle noted that the working group had accepted the general visual inspection part of the task and was concerned only with the quantitative bonding checks. It was pointed out that this issue relates to intermediate generation aircraft with no assurance program, and that the proposal is to determine the need for an assurance plan for these airplanes.

Fred Sobeck asked if the assurance plan would be accompanied by enhanced maintenance. Mr. Harbottle replied that the need for other activities would be based on the assurance plan results. Ed Block asked what the schedule was and was told it would be a minimum of 12 months. Jim Shaw withdrew his motion to table the discussion. A proposal was made as follows:

Before the project will be extended to other manufacturers and airplanes, Boeing and Airbus will sample intermediate generation, in-service airplanes to determine if a HIRF/lightning problem exists. The quantitative measurement task will be taken out of ATSRAC, and the manufacturers will work with the authorities to define required actions. The proposal was accepted without dissent.

Non-intrusive Inspection of Non-electrical Systems

Next on the agenda, was a Boeing/Airbus presentation on how ATSRAC task schedules could be met. Mr. Hollinger stated that Mr. Miller had requested this presentation as a result of the schedule concerns Beth Erickson, AIR-1, had expressed the previous day. A copy of the presentation is attached (Handout 7).

Discussion after the presentation centered around the reasons for the aging systems program, earlier decisions about the approach ATSRAC would take, and whether the tasking required further non-intrusive inspections. Kent Hollinger called for a decision on whether ATSRAC would perform more non-intrusive wiring inspections. It was unanimously decided that no additional non-intrusive wiring inspections would be made.

Debate then focused on non-intrusive inspection of non-electrical systems. It was proposed that existing non-routine maintenance data be used to address non-electrical systems other than dual load paths in control components instead of non-intrusive inspections. Randy Pope noted that, while not everything is reported to the manufacturers, things of consequence are. At least the airlines report significant items to the manufacturers. Jim Shaw asked Don Anderson if it would be a problem to do a data review with the operators. Mr. Anderson stated that it would not be easy, but it would be easier than inspections. Kent Hollinger asked if ATSRAC wanted to physically inspect, or take credit for, past inspections. It was noted that Option 3 (Handout 7) of the possible actions defined by Boeing and Airbus was to do nothing under the assumption that, unlike the case with wiring, non-electrical systems were already addressed and reported using ATA codes. David Harper noted that he was uncomfortable with the idea that all systems could be treated equally. He suggested that the working group review and select systems for additional review. Jim Shaw supported this with observations about landing gear failures. Mr. Miller pointed out that existing maintenance programs were doing a good job of addressing non-electrical systems and this was supported by maintenance records, service bulletins, and AD's. Mr. Hollinger then proposed that the committee take a vote on whether it should continue with non-intrusive inspections of all non-electrical systems. After additional discussion, a vote was taken. The vote was 10 in favor of dropping the inspections and 4 against. The dissenters were invited to submit minority opinions.

Discussion continued on whether to review service data. Jim Shaw stated he would like to see some data to show the group that there is not a problem. He suggested that ATA volunteers with electronic data on non-routine maintenance items participate. Dave Allen asked if this could be done by the end of the year. Fred Sobeck stated that he voted to drop the inspections discussed above because he assumed the committee would look at data. Tony Heather asked if the data would show an aging problem. In response, Bob Manelski of Boeing presented an additional proposal. He suggested looking at data on flight control systems. Randy Pope pointed out that

there was a lot of data in many places, and that service bulletins are the place the data ends up. When airlines have a common problem, it shows up in a service bulletin. Even service bulletins present a time problem. Dave Johnson pointed out that the underlying question is whether or not existing maintenance processes are addressing aging-related problems. Mr. Miller stated that the level of inspection the committee was discussing (general visual) would not detect latent or other types of failures, but only visible corrosion or damage. Chris Smith suggested using the SDR database. He volunteered to do the study.

Kent Hollinger asked whether or not the committee wanted to cease all inspections and data review based on the assumption that existing processes cover these areas. The vote was 7 in favor of, and 5 against, ceasing inspections and data review. The discussion was temporarily tabled while additional items of business were dealt with.

International and Canadian Maintenance Review Boards

Henry Dyck, Transport Canada, presented an outline of international and Canadian Maintenance Review Board (MRB) processes. A copy is attached (Handout 8). He noted that the Canadian MRB has not seen much activity or action around wiring issues and addressed specific concerns that they would like to see addressed. These concerns are outlined in Handout 8. Some of the areas of concern pertain to work on the post-TC process, developing revised logic processes for corporate operators, inconsistent application of analyses, lack of standardized training, audit functions, accountability and others.

Aging Aircraft Systems Data Requirements -- NASDAC Reporting Improvements

Bob Tenneyson gave a presentation about improvements to the NASDAC problem reporting processes. A copy is attached (Handout 9). Jim Shaw pointed out that SDR data has some problems and gave an example. He suggested that the regulatory basis for reporting was not adequate. Mr. Tenneyson replied that we shouldn't expect extensive regulatory requirements for data reporting. The major theme is to refocus existing activities on aging systems. Bill Schultz noted some NRC work and stated that private databases are enormous. He pointed out that many of the databases kept by the FAA serve various purposes, but industry databases are much larger by comparison. The NRC had recommended that the FAA get out of the database development process and require that industry find ways to get data to the FAA. He also asked about looking at 21.3 reports, which tend to cover major problems. Frank Fickeisen noted that the JAA is publishing a much longer list of events that would require a report to be generated than the FAA currently requires.

Intrusive Inspection Reports

Next, Chris Smith reported briefly on the progress of intrusive inspections. He noted that two inspections had been completed, and projected that all inspections would be completed during September 2000. An interim report will be available in April 2000.

Future Meetings

The committee scheduled meetings for October 11-12, 2000 in Washington, DC and January 17-18, 2001, also in Washington, DC. A complete list of future meetings follows:

Date	Location
April 4 - 6, 2000	FAA -- AANC NDI, Validation Center, 3260 University Blvd., SE, Albuquerque, NM 87106
July 19 - 20, 2000	FAA, Bessie Coleman Conference Center, 800 Independence Ave., SW, Washington, DC
October 11 - 12, 2000	FAA, Bessie Coleman Conference Center, 800 Independence Ave., SW, Washington, DC
January 17 - 18, 2001	FAA, Bessie Coleman Conference Center, 800 Independence Ave., SW, Washington, DC

Non-electrical Systems and SDR Analysis

The group then returned to the discussion on how to deal with non-electrical systems. It was finally agreed that Chris Smith would develop a work statement for an SDR analysis and send it by email for ATSRAC consideration and approval. If the work statement is approved, Chris agreed to perform the work and report the results to ATSRAC prior to the April 2000 meeting so that the committee could consider whether or not additional work may be needed. This would apply only to non-electrical systems and would not apply to dual load path flight control components. In addition, Boeing and Airbus took action items to present information on their activities in the area of service difficulty monitoring. They had presented this information during a previous meeting, but recognized that new members should hear the report. It was pointed out that it would also serve as a review for members who had heard the report before. Boeing and Airbus also agreed to present historical information on service bulletin and AD generation on some of the older airplanes to give the group a feel for the kind of work that has been done on non-electrical systems in the normal process of dealing with service problems.

Action Items

Mr. Hollinger reviewed the following action items from past meetings:

One carryover from the March 1999 meeting is:

Item No.

12. Provide a calendar of working group meetings, (Stu Miller)

Kent urged working group chairs to supply Mr. Miller with the necessary data.

One carryover from the July 1999 meeting is:

Item No.

2. Seek the participation of non-ATA airlines on tasks 3-5 working groups. Possible associations include NATA, IATA, AEA, and AAPA (Kent Hollinger and Stu Miller).

While IATA has been added to ATSRAC, no participation on the working groups has been arranged.

Carryovers from the October 1999 meeting are:

Item No.

1. Assure that ADs with repetitive inspections are reviewed to determine whether terminating modifications need to be developed. (Randy Pope)
5. Recommend to the ATA Chapter 97 working group that, instead of Chapter 97, a new wire code should be added to each subchapter with the third and fourth digits being 97 to indicate wire. (Don Collier)
6. Read and comment on the draft AC on avionics corrosion. (Working Group 3)
7. Bring the Spec 117 video to the next ATSRAC meeting for viewing. (Don Collier)

Adjournment

The meeting adjourned at 3:30 p.m. on January 20, 2000.

Kent Hollinger
Chair

Approved: April 4, 2000.

ACTION ITEMS

1. Add corrections to green book, take out edit marks, and send out as final draft. (Stu Miller)
2. Define the manner in which the FAA will promulgate maintenance improvement recommendations. (Stu Miller and Fred Sobeck)
3. Prepare SDR review task plan and send out to ATSRAC for review and approval. If approved, complete action and e-mail results to ATSRAC prior to the April 2000 meeting. (Chris Smith)
4. Make changes identified by ATSRAC to the ASTF report. (Randy Pope)
5. FAA to check on data confidentiality in the hands of a contractor. (Stu Miller)
6. Report the ATSRAC division on putting the inspection data in a database for later use. (Stu Miller)
7. Airbus/Boeing to make maintenance presentation in April 2000. (Mike Nancarrow and Patrick Glapa)
8. Boeing/Airbus to present data on service bulletin and AD history. (Patrick Glapa and Mike Nancarrow)