

**AGING TRANSPORT SYSTEMS RULEMAKING
ADVISORY COMMITTEE**

Meeting Minutes

Date: July 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 at 9:20 a.m. Mr. Charles Huber, Executive Director, read the advisory committee briefing statement, after which Mr. Hollinger noted the addition of one new member to the ATSRAC -- Dr. Gary Slater, National Air Disaster Alliance/Foundation.

After introductions, the agenda was briefly reviewed (Handout 1). Next, revisions were proposed to the April 4 - 6, 2000 meeting minutes (Handout 2). Chris Smith agreed to submit revisions to the SDR Data Mining section of the April meeting minutes in writing.

ATSRAC Letter to the FAA, Dated April 24, 2000

Mr. Hollinger reviewed the FAA's response to the ATSRAC's April 24, 2000 letter to the FAA (Handout 3). Mr. Huber summarized the meeting with Beth Erickson, AIR-1, along with the results of the meeting. The subjects discussed and decisions made at the meeting with AIR-1 constitutes the FAA's response to the ATSRAC's letter. The items proposed by the letter were accepted by AIR-1.

Training Working Group Presentation

Paul Lapwood gave a presentation on Task 5 -- Training (Handouts 4 and 4A). The presentation provided a status report on Task 5 activities, presented a preliminary curriculum and lesson plans and discussed deliverables. Mr. Lapwood stated that the task is on schedule and that the working group is waiting for:

- information on single element dual loadpath control; and
- final reports from Tasks 1 - 4.

Mr. Lapwood solicited more input from industry and interested persons. Regarding deliverables, he stated that the working group's completed document, containing a series of detailed lesson plans, would be completed by September 30, 2000 and presented at the

October 2000 ATSRAC meeting. He anticipated that, by then, the document would be revised, based on comments submitted by ATSRAC members and final results from Tasks 1 - 4. He pointed out that there is a possibility that Task 3 results might not be available in time to incorporate them into the training document. If this occurs, the working group will need additional time to complete their task. Detailed information about the proposed training program, methodology, status and issues can be found in Handouts 4 and 4A.

Mr. Hollinger asked the ATSRAC membership and other interested parties to provide input to Mr. Lapwood on the training curriculum/lesson plans by August 31, 2000. Mr. Lapwood noted that the initial survey of airlines and repair stations did not give the working group sufficient information. They intend to do the survey again. The ATA, IFA and AIA agreed to help by sending the survey to their membership.

The following questions from the ATSRAC and other interested parties were asked:

- As a result of the nonintrusive inspections, we know where some of the problem areas are. Will we emphasize these areas in the training?
- The training proposal gives a lot of emphasis to OEMs, repair stations, and so on, but what about all of the entities involved in modifications?
- Will the working group address instructor competency?
- Is lightning/HIRF addressed in the proposed training program?
- Will the recommended training program address proper documentation?

With respect to modifications, Mr. Huber stated that the FAA is developing policy that will lay out the requirements for the data package. Mr. Shaw pointed out that wiring installations can vary widely from installer to installer. Mr. Lapwood acknowledged these as good suggestions and encouraged more input to the working group in these areas. The training curriculum can be applied to all scenarios. Fred Sobeck mentioned that there have been internal FAA discussions on how to incorporate the ATSRAC recommendations into existing maintenance programs. He referred to the automated ops specs system and said that one possibility is to create a separate page for maintenance that would specify what the training program should include. This would allow operators to continue to use their existing maintenance programs. Mr. Robeson mentioned that the ATSRAC should think about how to disseminate the training information to the JAA and other entities.

Concerns were expressed about inspections taught in classrooms as opposed to on airplanes in an "actual environment." Mr. Lapwood stated that the training program acts as a guide and leaves it to the instructor as to the appropriate venue. Mr. Block also mentioned wire type and installations -- what is approved by OEMs vs. what can be done on an STC. He cited an example where wire was subsequently installed and was inferior

to the original wire. Mr. Huber asked where circuit breakers fall into the proposed training curriculum. Mr. Lapwood responded that they weren't addressed, but could be added later. Mr. Hollinger noted that circuit breakers had not been specifically tasked.

Maintenance Working Group Report -- Status of Task 3 Subcommittee Activities

Norm Hennings gave a status report on Task 3 (Handout 5). The report outlined meetings scheduled throughout the rest of the year and discussed the four products the working group is working on. The status of the products are outlined as follows:

- **Product 1 -- Develop a logic process that can be applied to both new aircraft and in-service aircraft to ensure that appropriate attention is paid to age related deterioration of wiring/wiring installations.**
 - ◆ The working group will suggest the use of mirrors be included in the GVI definition.
 - ◆ None of the approaches to an enhanced zonal inspection program were found satisfactory to the working group. Approaches were discussed and additional meetings are scheduled to further develop the logic. New logic will start at the level of the individual zones.
 - ◆ Rating tables will be established.
 - ◆ Where the zonal inspection program is considered inadequate, either GVI or detailed inspections will be done.

- **Product 2 -- Develop recommendations to be followed in order to minimize the potential deterioration of wiring installations from the effects of contamination and accidental damage.**
 - ◆ Existing documentation has been gathered and text drafted.
 - ◆ Focus is on wiring. General recommendations will be addressed in Product 4.
 - ◆ Suitable repositories for each subject area will be proposed.

- **Product 3 -- Develop guidelines to permit appropriate attention to be given to flight control dual load path design during development of instructions for continued airworthiness.**
 - ◆ Text for the MSG-3 guidelines has been drafted for the need to address load paths for single element dual load path components in flight control systems.
 - ◆ Recommendations to assess/reassess the maintenance program pertaining to single element dual load path components in flight control systems will also be written.
 - ◆ Working group investigation shows that few, if any, of the designs make inspection of the secondary path impossible.

- **Product 4 -- Develop generalized recommendations to increase awareness of maintenance quality issues.**

- ◆ Guidelines of the type of deterioration expected to be found during a zonal inspection are being written.
- ◆ Work is currently being done on other systems, in addition to wiring.
- ◆ This product will also address general issues to promote awareness of potential enhancements to an operator's maintenance practices.

The working group expects to present their final products by October 2000 for the following activities:

- Improve maintenance criteria
- Define improved inspection criteria
- Bundle contamination
- Corrosion criteria

Mr. Shaw stated that more emphasis should be placed by operators on preventing contaminants from getting on wire bundles and on cleaning these sites immediately. Mr. Glapa noted that producing these products within the timeframes specified is very ambitious. There was general agreement on this point; however, the working group believes they can get it done. Mr. Huber suggested that the working group distribute the products to the ATSRAC 2 weeks prior to the October 11, 2000 ATSRAC meeting.

Mr. Hennings pointed out that some tasks will direct maintenance personnel to clean hard to access areas. Ric Anderson stated that the idea is to "clean as you go" and prevent contamination from the start. He asserted that there needs to be a change in thinking among maintenance personnel.

Standard Wire Practice Working Group Report -- Task 4

Dave Allen gave a status report on the activities of the Task 4 working group (Handouts 6, 6A and 6B). The working group was tasked to review, update and simplify the Chapter 20 wiring manuals, several FAA advisory circulars, ATA Spec 117 and other specifications and standards applicable to aging aircraft wiring systems. The basis for the updates was to be the data received from the nonintrusive inspections, the service bulletin reviews and the intrusive inspections. Their second task was to define a process for training programs for maintenance, repair and inspection of aging aircraft.

At the April 4, 2000 ATSRAC meeting, the working group was asked to issue an interim report by the end of June 2000. The working group completed the portion of their tasks that were based on the nonintrusive inspection report. Tasks related to service bulletin reviews and intrusive inspections cannot be completed until the data is made available by other working groups. Items completed¹ to date are:

- Updates of AC 25-16, AC 43.13-1B and AC 43xx (Corrosion of Avionics)
- Redraft of ATA Spec 117

¹ Based on nonintrusive inspection report.

- Reviews of Airbus and Boeing wiring manuals
- June 30, 2000 Interim Report to ATSRAC

Items currently being worked are:

- Refine proposed index for wiring manuals/ATA 100
- Review service bulletin report to determine the need for changes in specifications or manuals
- Review intrusive inspection results
- Refine the process for training
- Prepare final report

The working group has various meetings scheduled during September, October and November.

Jim Shaw asked how capturing specific types of wire problems would be dealt with in ATA Chapter 100. Mr. Allen referred him to page 3 of the working group's Task 4 interim report dated July 2000 report where an index and coding system is proposed. There was considerable discussion around this issue and the breakout of codes under various subchapters. Concerns were also expressed that the format might not fit all applications. An action item was taken for ATA to make a presentation at the October 2000 ATSRAC meeting that addresses their actions/progress on implementing the October 1999 ATSRAC recommendations on wire codes.

Mr. Allen stated that, on July 18, 2000, he received a dissenting opinion (Handout 6C) on the addendum to the interim report. The dissenting opinion was specifically related to methods for obtaining simplified electrical standard practice documents. The dissenting opinion alluded to the possibility of other dissenting opinions. Mr. Allen stated that this, and any other dissenting opinion submitted in the interim, would be reviewed at the next working group meeting.

Mr. Huber stated that the ATSRAC needed to vote on Task 4.1 with respect to Chapter 20 and suggested that the membership review, on their own that evening, the documents submitted by the working group, then vote on the recommendations the following morning. This was followed with discussion about whether it would be appropriate to vote in light of the dissenting opinion submitted and the likelihood that there were other dissenting opinions that had not been submitted yet. Several members asserted that the entire working group had not had the opportunity to review the dissenting opinion submitted July 18, 2000. Mr. Huber asked the ATSRAC to read the handouts that night and open this issue for discussion the next day. It was pointed out that all of the items in the interim report are subject to the results of the intrusive inspections, and that some people were suggesting a special meeting or other means completing the tasks within the time limitations of the current schedule.

Aging Systems Task Force (ASTF) -- Tasks 1 and 2 Summary

Randy Pope and Don Andersen summarized the ASTF's activities and presented the ASTF final report to the ATSRAC. The areas addressed by the presentation follow:

- The nonintrusive wiring survey is completed. Eighty-one airplanes were surveyed. There were 3215 total nonroutine findings, zero safety of flight issues, 182 potentially significant findings requiring additional evaluation, and 5 items were identified that ~~may require fleet changes~~ may require some actions.
- During the service data review, the ASTF identified thousands of documents as potentially relating to airplane wiring. Of those, 711 documents were actually related to airplane wiring and 67 documents were found to require additional, detailed analysis.
- Repetitive Action ADs -- 79 current ADs applicable to affected airplane models were found to require repetitive actions with or without a terminating modification. Eight ADs were recommended for compulsory incorporation of terminating action.
- During the OEM significant item review process (182 items), it was determined that 177 items require no additional action. Five A300 items are still being evaluated, and the results are expected in December 2000.
- OEM Service Data Review Process -- 67 items will receive additional emphasis for incorporation; 22 items are, or already have been, planned for upgrade to alert or mandatory status.
- Repetitive Action AD Review -- 8 ADs on Boeing airplane models were found that should have terminating action mandated.

The ASTF recommendations are presented in detail in the two handouts referenced above.

There was discussion around the following items:

- **What is meant by "safety of flight" --**
 - ◆ "Safety of flight" was defined as a discrepancy or safety of flight concern requiring immediate fleetwide action. Don Andersen cited an example where one airline missed 3 opportunities to correct a wire chafing problem on a power feeder cable to a battery. It was chafed, but hadn't arced or sparked. He stated that it was a particular operator's problem, not a fleetwide problem. There were numerous questions as to why this wouldn't happen with other airlines. Mr. Andersen asserted that the processes in place were addressing situations such as these. Several ATSRAC members stated that they felt a chafed wire, where the potential for arcing existed, should be a safety of flight item. Mr. Shaw said he

believes the ASTF report understates the problem. Several other members asserted that the current process is robust and that it addresses issues such as these. Ed Block stated that "putting the ball in the OEM's court" was not wise because it was similar to asking industry to police itself. It was pointed out that other working groups were addressing these items, even though they were not considered "safety of flight" items. Mr. Shaw reiterated his concerns and stated that he disagrees with the perception that "zero safety of flight concerns" gives. Don Andersen reminded the group that the definition pertains to "immediate" and "fleetwide." Randy Pope backed this up by saying that potential hazard and frequency of occurrence had to be considered, also.

- ◆ OEMs will notify operators of the 182 significant items that were found. David Harper asked for confirmation that OEMs were going to do this. Ric Anderson confirmed that they were.
- **Service Bulletin Reviews --**
 - ◆ Jim Shaw asked what the level of compliance for SBs is. Don Andersen stated that it wasn't very good. He said they can tell by the number of upgrade kits sold. Kent Hollinger noted that most SBs are not related to safety; many pertain to product upgrades.
- **Repetitive Action AD Review --**
 - ◆ AIR-1 asked how or why the ASTF determined that terminating action should be used as opposed to continuing inspections. The response was that terminating action represents a higher level of safety.
- **ASTF Final Report --**
 - ◆ Randy Pope and Don Andersen submitted, on behalf of the ASTF, the Aging Transport Systems Task 1 and Task 2 Final Report (Handout 8) and stated that the working groups tasks have been completed.
 - ◆ Kent Hollinger asked where, in the final report, the recommendation regarding the 8 repetitive action ADs recommended for terminating action was located. Pope and Andersen said they would add it as Recommendation #9.

Kent Hollinger summarized the ASTF's taskings and asked whether, based on the ASTF presentation and final report, the taskings had been completed. Vic Card noted that the introduction to the task refers to "system," not "electrical wiring" system. From that perspective, he didn't feel that the ASTF had completed their tasking. Mr. Hollinger explained that the task had been modified and that, in past ATSRAC meetings, it was agreed that there were no other systems that the ASTF needed to look at.

It was suggested that operators should be notified of the significant items found. There was general agreement that OEMs should send out notification of these items. Dave Allen moved to accept the final report subject to two modifications -- adding the terminating action ADs and the OEM notification to operators task. Henry Dyck referred to the recommendations section of the ASTF presentation and asked, for the second and third recommendations, who would be doing the "considering" portion of the recommendations. Mr. Pope stated that the ATSRAC, rather than the ASTF, should make this decision. For this reason, the ASTF did not specify who would be doing the action.

→ July 20, 2000 Meeting Resolved
 April 4 - 6, 2000 Meeting Minutes Approved

Chris Smith submitted his proposed changes to the April 4 - 6, 2000 meeting minutes (Handout #9). There were no objections to the proposed changes. Subject to all of the revisions proposed by Dr. Smith and others, the meeting minutes were unanimously approved.

Future Meetings

The location of the January 17 - 18, 2001 meeting was briefly discussed. It was suggested that the meeting be held in Airbus facilities in Miami, Florida. There was general agreement.

As a reminder, the following meetings have been scheduled:

Date	Location
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 <u>AIRBUS Industrie</u> <u>Miami, FL</u>

Standard Wire Practice Working Group Report -- Task 4, Continued

Fred Sobeck informed the ATSRAC that he had just received another dissenting opinion on the Task 4 Interim Report. Several people commented that the Task 4 report and deliverables were not ready to vote on due to lack of consensus within the working group. Jim Shaw made a motion that the Task 4 working group rework their recommendations at their September 2000 meeting until consensus is reached, then e-mail the resulting recommendations to the ATSRAC for review before the October 2000 ATSRAC meeting. Mike Nancarrow seconded the motion. The vote was unanimous in favor of the motion.

It was noted that Chris Smith will forward the intrusive inspection results to the Task 4 working group as they become available.

ASTF Final Report, Continued

Jim Shaw proposed various revisions to the text of the ASTF final report. There was some discussion around these revisions and certain revisions were made. In addition, Mr. Huber suggested adding an addendum that would address lessons learned. He stated that the data could be analyzed and sanitized to extract lessons learned.

A motion was made to issue a follow-on addendum to the ASTF Final Report that would include the "sanitized data" and make a recommendation to analyze the data to determine the lessons learned. The motion was seconded and the vote was unanimous in favor of the motion.

There was additional discussion about who would analyze the data and determine the lessons learned. It was generally decided that the ASTF working group would not do it. Several people stated cautions about drawing conclusions from the data because some areas were not looked at, so there would be no data. The absence of data does not imply that there are no problems. It was also noted that inspections were done at different points -- some after heavy maintenance checks and others after other work had been done. This could affect the type of conditions found. Randy Pope affirmed that he did not think the ASTF working group should be tasked to analyze the data. Patrick Glapa expressed concern as to how the ATSRAC could analyze the data given no resources and the very limited timeframe.

Next, a motion was made to make 3 other proposed revisions to the ASTF final report. They are:

- Add a recommendation to page 15 to request that the FAA mandate terminating actions on the 8 repetitive action ADs;
- Add an action item that OEMs inform operators of significant items; and
- Change text on page 6 -- Immediate fleetwide safety of flight concern -- significant item or frequently occurring defect.

The vote was unanimous in favor of the motion.

The approved revisions to the ASTF Final Report are summarized as follows:

- Add a recommendation to page 15 to request that the FAA mandate terminating actions on the 8 repetitive action ADs;
- Add an action item that OEMs inform operators of significant items; and
- Change text on page 6 -- Immediate fleetwide safety of flight concern -- significant item or frequently occurring defect.
- Issue a follow-on addendum to the ASTF Final Report that would include the "sanitized data" and make a recommendation to analyze the data to determine the lessons learned.

It was noted that the lessons learned would be added to, revised or validated based on the results of the intrusive inspections.

Ed Block commented that he had submitted a dissenting opinion on wire type and wanted to know if there was a rebuttal process. He felt that his opinions were never discussed and resolved. Mr. Nancarrow pointed out that the ATSRAC had a process in place for submitting dissenting opinions. He acknowledged that Mr. Block had submitted his dissenting opinion, but that the ATSRAC, after considering the ASTF final report, had voted to accept the report. Randy Pope noted that the working group had reached consensus with 1 dissenting opinion. Kent Hollinger noted that the discrepancies found did not appear to be wire type dependent. *(check the tape for verification of last comment)*

New Tasking Proposed by AIR-1

Beth Erickson, AIR-1, proposed a new task to the ATSRAC that would consist of looking at fundamental design issues. She clarified that this would involve activities including, but not limited to whether wire clamp clearance from structures was adequate. David Harper asked if these concerns were design issues or manufacturing issues. Others noted that these items could also be installation issues. Mike Nancarrow suggested that perhaps it would be useful to do a lessons learned analysis in this area. Mrs. Erickson agreed it would be helpful. Kent Hollinger mentioned that OEMs don't generally exchange lessons learned. Mr. Nancarrow proposed chartering a working group. Mrs. Erickson offered to meet with anyone who is interested in exploring her proposal.

Status of Arc Fault Circuit Breaker (AFCB) Development

Larry Snarr of the Hendry Corporation gave a presentation on AFCB development. His presentation included the characteristics, safety and maintenance of arc fault circuit interruption, the technical challenges of configuration and specification, and the plan to develop this technology for use in aircraft. Details of his presentation are contained in Handout 10. The main points he outlined were:

- Arc fault detection technology can improve aircraft safety and maintenance
- The technology is available
- Airframe users and manufacturers are investing resources to configure the technology for aerospace
- There is a plan to prove this technology for use with aircraft, funded by government and private sources
- The plan will result in flight testing in the Year 2002
- Arc fault detection technology applied to aircraft is a good match

He pointed out that arc fault circuit interrupters perform all of the functions of the circuit breaker and provide additional safety features such as detecting and protecting wiring and subsystems from arcing faults. Mr. Snarr outlined the configuration and specification challenges that AFCB development presents. Further, he outlined the Navair/FAA project plan with respect to these circuit breakers and showed samples of some of the items that were being developed.

Next, Eaton Aerospace gave an overview of their involvement in arc AFCB development. Some of the issues they wanted to inform the ATSRAC about are listed as follows:

- There are currently no aerospace specifications for AFCBs. Specifications need to be developed
- There currently is no responsible party for specifying the device when it comes time to certify the product
- Aircraft are needed to test the product on
- How much nuisance tripping is acceptable?

They mentioned that their research and development was open to input, and that they were currently working with SAE to develop specifications.

Intrusive Inspections Report

Chris Smith gave a presentation on intrusive inspections (Handout 11). Issues related to the intrusive inspection project consist of:

- Visual inspection for debilitating traumatic damage, which included perception of the failure condition itself (e.g., chaffed wire) and perception of conditions leading to the failure (e.g., contamination)
- Visual inspection for determination of susceptibility to proximate failure or observation of proximate failure itself. Visual clues may be weak or nonexistent.

Dr. Smith's report outlines protocols used, specimen types and laboratory testing. The visual inspections conducted as part of the intrusive inspection project yielded 4 finds that the group considered worthy of formal manufacturer followup. These findings are detailed in Handout 11 as are the results of the laboratory tests conducted to date. Dr. Smith expected that the laboratory analysis of wire specimens would be completed in August 2000 and that he would report the final results to the ATSRAC in September 2000.

New Tasking Proposed by AIR-1, Continued

Regarding the new tasking proposed by AIR-1, Mr. Huber announced that the effort would start with a small group comprised of Mike Nancarrow, Patrick Glapa and himself. They will define the task and outline a plan of action with an end of task date of January 2001. The proposed task will be presented to the ATSRAC at the October 2000 ATSRAC meeting with the expectation that the ATSRAC decide at that time whether to accept the new task.

SDR Analysis and Normalization on Nonelectrical Systems

Chris Smith gave a report on SDR analysis and the normalization of data on nonelectrical systems. The objective of the SDR analysis is to identify potential system safety issues. Dr. Smith outlined the approach and presented various data (Handout 11). The purpose of the supplemental analysis is to:

- Identify trends in the nature of the failure
- Identify trends in the severity of failure
- Test the analysis wire failure

After presenting and discussing the data, Dr. Smith concluded that service difficulty reporting (nonroutine service reporting) does not contain readily apparent trend data that supports the notion of severe mechanical systems degradation either overall or in specific systems or components. He pointed out that this statement should not be more broadly interpreted to imply the absence of significant mechanical systems degradation.

Mixing Wire Types in Bundles

The agenda allowed for optional presentations before the ATSRAC decided what the action plan related to mixing wire types in bundles would be. There was one presentation given by Ed Block (Handout 12).

Mr. Block maintained that the FAA does not mandate wire type and stated that all you have to do to get through FAA requirements is pass a 60-degree flame test. Beth Erickson, AIR-1, stated that this characterization was inaccurate and that she would address the characterization at the end of the presentation. Mr. Block continued by expressing his concerns about the mixing of wire types. He stated that the FAA had no regulations prohibiting the mixing of wire types and listed problems that had been identified with certain wire types including explosive flashover due to arc tracking, premature aging and smoke and flammability issues. He then pointed to various documents that detailed certain problems with particular wire types. Mr. Block pointed out that different wire types have different temperature ratings, different voltage ratings, different service lives and different abrasion resistances and that they should not be mixed. He concluded by asserting that there should be regulatory action to ensure that certain wire types are not mixed in bundles.

There was considerable commentary and discussion on this subject. Someone asked if any additional information had been gathered about AC 25-16. Mr. Huber stated that he

had been told that the intent was to "separate when you can." RaNae Contarino referred to the Navy Report submitted for review at the last ATSRAC meeting. She maintained that distinctions have been made about wire type and mixing them in bundles and that previously no thought had been given to the service life of wire; we expect it to last as long as the structure. Patrick Glapa maintained that it depends on how the wire is used and installed. Ed Block stated that there is a lack of consciousness about mixing wire types across the maintenance industry and STC world.

RaNae Contarino said that wire manufacturers have indicated that they would like to put a matrix together on the good points and bad points of various types of wire. She believes the ATSRAC should have them do this, then make a presentation at a future ATSRAC meeting. After that, the ATSRAC should decide what action needs to be taken -- whether it is additional research or other types of action.

Dave Allen stated that, in his experience, you cannot base safety judgments on wire testing. He asserted that you can manipulate the data any way you want to and not come out with valid findings. NEMA agreed that the results may be inconclusive. Patrick Glapa did not believe that wire manufacturers were the appropriate body to do the research. He felt that an objective third party would be more appropriate.

Chris Smith stated that no existing service data shows a problem with mixing wire types. Ed Block disagreed. Several people stated that they did not believe the ATSRAC should take this issue on. They believe it should be referred to another body. Mr. Huber recapped the issue as follows:

- FAA policy indicates that different wire types should not be mixed.
- DoD policy indicates polyimide should not be used in certain locations.
- A 1979 Boeing SB indicates a reduced cycle limit on certain types of wire.
- Navy tests indicate reduced insulation breakdown resistance following mixing of wire type testing. The Navy report calls for additional research.
- SDRs do not indicate a problem with mixing of wire types.
- Airbus tests did not indicate a problem with mixing of wire types.

A proposal was made to table this issue until the ATSRAC receives the intrusive inspection results. Everyone voted in favor of this proposal.

Action Items

Mr. Hollinger reviewed the action items from past meetings.

Adjournment

The meeting adjourned at 4:30 p.m. on July 20, 2000.

Kent Hollinger
Chair
Approved:

ACTION ITEMS

1. Provide input to Paul Lapwood on the training curriculum and lesson plans by August 31, 2000. (ATSRAC Members) *Nov. 3*
2. Solicit feedback from association membership on the training curriculum and lesson plans presented by Paul Lapwood by ~~August 31, 2000~~ *Nov 3* (ATA, AIA and IFA)
3. Have ATA make a presentation at the October 2000 ATSRAC meeting that addresses their actions/progress on implementing ATSRAC's October 1999 recommendations on wire codes. *Complete*
4. Incorporate revisions to the ASTF Final Report by July 28, 2000 and distribute electronically to ATSRAC. (Randy Pope/Don Andersen) *Compl.*
5. Develop a plan to create and distribute lessons learned from the ATSRAC tasks. Present a task for ATSRAC acceptance. (Chuck Huber/Mike Nancarrow/Patrick Glapa) *Plan created*
6. Have the FAA present implementation proposals. (FAA) *Complete*
7. Discuss the future of ATSRAC.
8. Provide additional information on mixing wire types before the next ATSRAC meeting. (RaNae Contarino) *close*
9. Resend information on wire usage by system type (the JAA representatives did not receive the information when it was sent the first time). (Mike Nancarrow) *complete*
10. Provide additional information and rationale for the origins of data included in AC 25-16 and AC 29.2B. (Chuck Huber) *agenda for Jan. 01*
11. Contact engine manufacturers about wiring and have them provide someone to make a presentation at the next ATSRAC meeting. (Bob Robeson) *agenda for Jan. 01*
12. Continue to monitor the implementation of ATA code 97.