

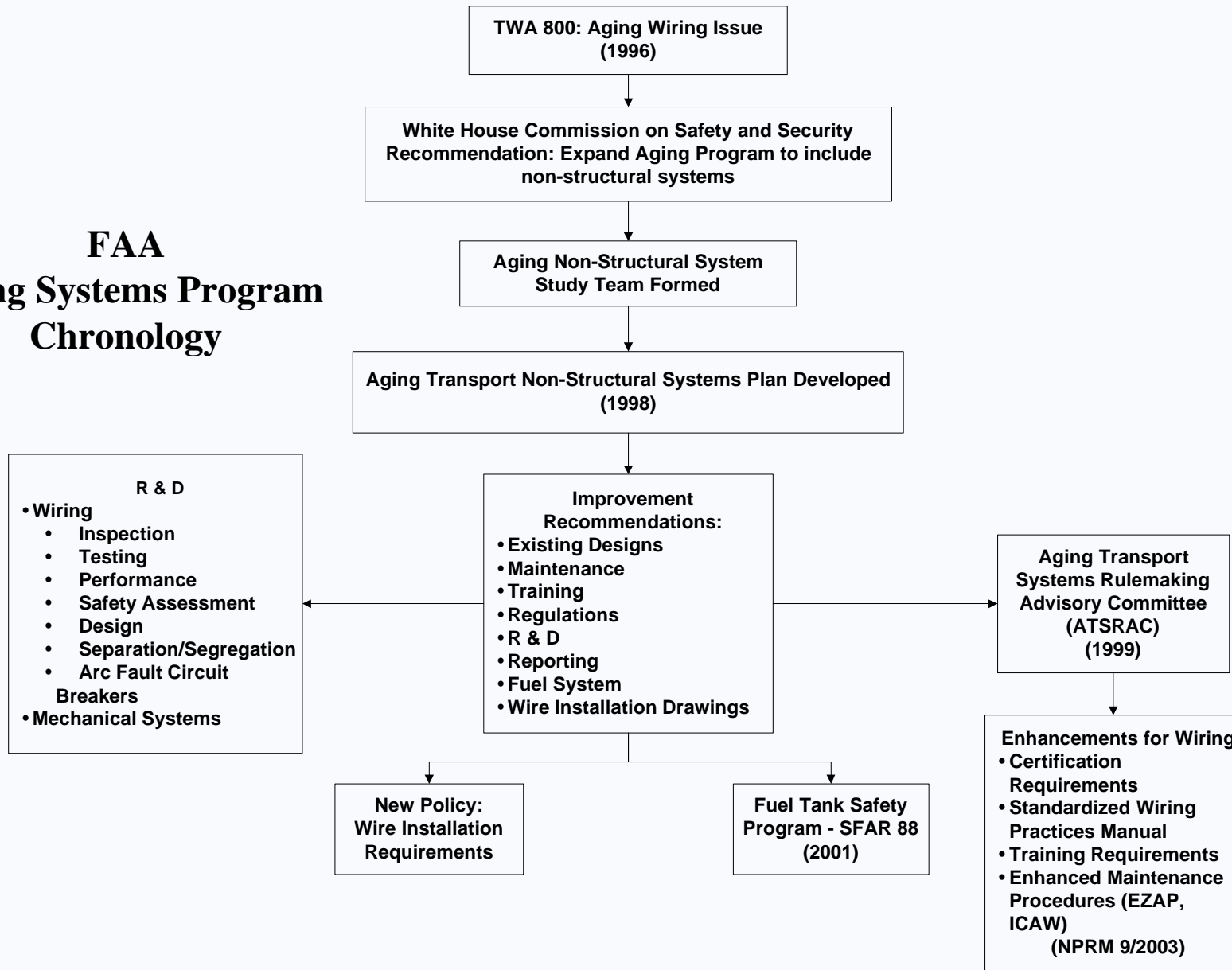


Enhanced Airworthiness Program for Airplane Systems (EAPAS)

**Presented by:
Massoud Sadeghi
FAA - Aging Systems Program Manager**

**EAPAS Workshop
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FAA Aging Systems Program Chronology





ATSRAC Members

1. Federal Aviation Administration
2. Department of Defense
3. Air Line Pilot Association
4. Air Transport Association of America
5. Aerospace Industries Association of America
6. National Aeronautics and Space Administration
7. General Aviation Manufacturers Association
8. International Federation of Airworthiness
9. Transport Canada
10. PEMCO
11. National Air Disaster Alliance/Foundation
12. AECMA (European Association of Aerospace Industries)
13. European Joint Aviation Authorities
14. Northwest Airline
15. AirTran
16. International Air Transport Association
17. Boeing Commercial Airplane Group
18. Airbus Industrie
19. Society of Automotive Engineers
20. National Electric Manufacturers Association
21. International Association of Machinists



Wire System Facts

- “Aging” wire systems encompasses more than physical and chemical degradation.
- Inadequate maintenance/repair or contamination to particular wiring systems is likely to occur/increase over time.



ATSRAC Initial Tasks

- Task 1: Sampling inspection of the Fleet
- Task 2: Review of fleet service history
- Task 3: Improvement of maintenance criteria
- Task 4: Review and update standard practice for wiring
- Task 5: Review air carrier and repair station inspection and training programs

Initial tasks completed and approved in January 2001



ATSRAC Current Tasks

The FAA further tasked ATSRAC to provide recommendations on:

- Improving wire system certification requirements
- Enhancing wiring maintenance procedures and instructions
- Enhancing current training programs
- Standardizing the format of Standard Wiring Practices Manual
- Small transport airplanes systems (added)

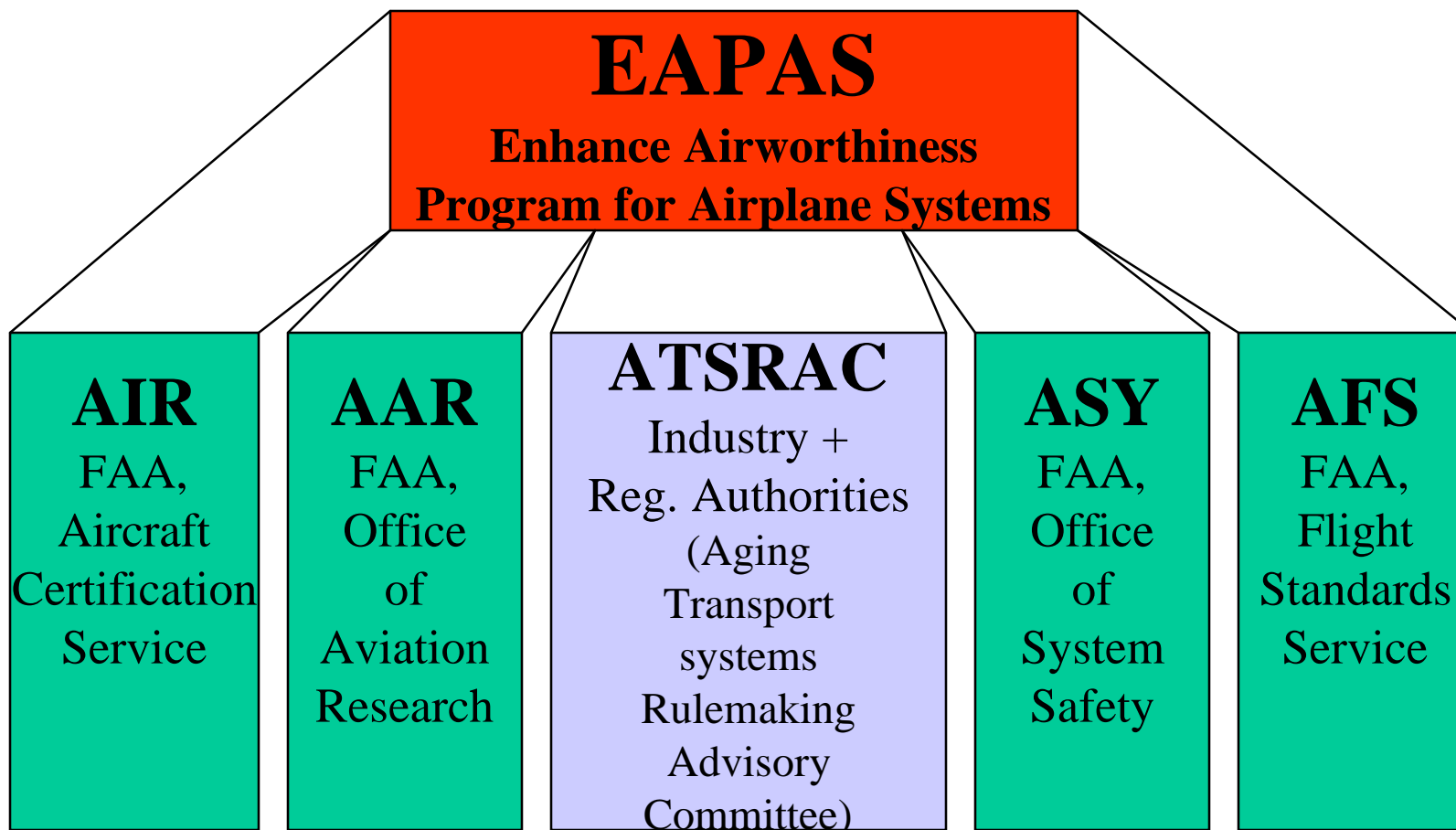


EAPAS Implementation Plan

The EAPAS is designed to enhance current airplane systems airworthiness programs at operator facilities, repair stations, and manufacturing plants based on data-driven initiatives developed under the Aging Transport Non-Structural Systems Plan.



EAPAS Program Support





Enhancement Categories

The EAPAS implementation plan is organized into six major categories covering design, certification and maintenance of transport airplanes:

- Training
- Maintenance
- Design
- Research and Development
- Wire Reporting
- Information Sharing and Outreach



EAPAS Initiatives

- Near-Term
 - Raise awareness about aging system issues
 - Enhancements/changes in training and maintenance programs
 - Training for FAA inspectors, engineers, and designees
 - Tasks to be complete by late 2001
- Longer-Term
 - Institutionalize management of aging systems
 - Changes in inspections and Instructions for Continued Airworthiness
 - Changes to regulations (FARs) for improvements in certification and maintenance
 - Tasks are planned to be complete by mid-2004



EAPAS Implementation Plan

- Section 1. Introduction
- Section 2. Strategy for Implementing the EAPAS Plan (Near-Term and Longer-Term initiatives)
- Section 3. Enhancement Category Goals and Strategies
- Section 4. Conclusions



EAPAS Strategies - examples

Table 3: Training Schedule (T)

Goal	Strategy	Scheduled Completion	Product	Status/ Remarks
<p>To increase the knowledge and awareness of aircraft wiring design, installation, handling, maintenance, repair, and certification, especially as they relate to continued airworthiness, among FAA engineers, inspectors, DERs, operators, repair station personnel, and others in the technical community.</p>	<p>T. 1. Develop IVT and train engineers and DERs.</p>	<p>2nd Q 2001</p>	<p>IVT (interactive video training)</p>	<p>Task Completed. First IVT: March 2001 – Completed; Second IVT: June 2001 – Completed; Additional IVT: December 2001 80% of FAA Sys. & Prop. Engineers have been trained. 3rd Q 2002 will train remaining 20% by self-study.</p> <p>1260 AFS inspectors have been through the IVT as of September 12, 2002.</p>



EAPAS Strategies - examples

Table 5: Design Schedule (D)

Goal	Strategy	Scheduled Completion	Product	Status/Remarks
<ul style="list-style-type: none"> To correct known deficiencies in existing airplane wiring systems. To enhance requirements and guidance for design, installation, Instructions for Continued Airworthiness, and certification of aircraft electrical wiring systems. 	D. 1. Issue ADs to correct known deficiencies by requiring service bulletins identified by ATSRAC.	4 th Q 2001 (Notice of Proposed Rulemaking - NPRM June 1)	ADs	Task Completed Last NPRM will be published in September 2001
	D. 2. Issue superseding ADs requiring modifications instead of repetitive inspections, which may be causing damage to wiring and other systems.	4 th Q 2001 (NPRM June 2001)	ADs	Task Completed All NPRMs are published
	D. 3. Issue policy for criteria for approving wire system installation drawings.	Policy memo (published in Federal Register)	2 nd Q 2001	Task Completed – Policy published in July 2 Federal Register



EAPAS Status

- The EAPAS implementation plan was approved and published August 2001; updated October 2002.
<http://www.faa.gov/apa/eapas.doc>
- The EAPAS Near-Term actions have been successfully accomplished. Examples are:
 - Published Policy: “Approval Criteria for Wiring Installation Drawings”
 - First annual workshops for the FAA Engineers and Inspectors (including industry, government agencies, and international authorities participation); November 5-8, 2001, second workshop November 5-7, 2002.
 - Aircraft Wiring Practices: Training + Job Aid on internet
Majority of the FAA Engineers and Inspectors have completed the training.
(Video/Self-study materials: 1-580-234-2845 or 1-800-443-3827, course No. 25827)
(<http://www.academy.jccbi.gov/AIRDL/wiringcourse>)



EAPAS Status

- ATSRAC Current Tasks:
 - 6 through 9 are complete.
 - 10 will be complete in January 2003
- Detail information available on ATSRAC website: <http://www.mitrecaasd.org/atstrac/index.html>



EAPAS Status

- Aging Small Transport Airplane Systems study underway.
 - Scope: Part 25-certified airplanes (6 - 30 passengers)
 - Goal: To assess aging effects on wiring; to determine applicability of current ATRSRAC rulemaking and identify any unique aging issues for those airplanes.
 - A Study team has been formed with members from manufacturers, operators, and authorities.
 - Currently airplanes are being inspected by the study team.
 - Study will be completed January 2003.



EAPAS Status

- Aging Mechanical Systems studies underway.
 - Proactive approach with manufactures, operators, and authorities participating.
 - Study includes: design/maintenance evaluations and destructive/non-destructive tests.
 - Study will be in phases: Flight Control System, Hydraulic System, Fuel System, etc.
 - First phase involves:
 - Study of B757 and A320 Control Systems
 - Test critical parts of aged airplanes (737, 747, A300)
 - Small transport mechanical systems will be added.



FAA Commitment

- FAA is fully engaged with implementation of the EAPAS plan.
- EAPAS is closely monitored by an oversight committee of senior FAA management who are responsible for:
 - Ensuring all goals of EAPAS are accomplished adequately and on time.
 - Providing necessary support, resources, and budget to the EAPAS to meet its commitments.
 - Ensuring that EAPAS has appropriate priority.



Summary

- Implementation of the EAPAS near-term and longer-term improvements will mitigate the potential safety concerns in aircraft wire systems.
- The proactive mechanical systems study will identify possible aging issues in the transport mechanical systems.
- With addition of the aging small transport airplane systems study, a wide coverage of aging issues for both large and small transport airplane categories is ensured.



Summary

- Participation of international airworthiness authorities and industry is vitally important to the successful implementation of EAPAS program.
- Awareness of systems' aging issues and a close working relationship between FAA engineers and inspectors is essential for the successful implementation of all the EPAS enhancements and an improvement in airplane Systems Safety.