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# **Enhanced Airworthiness Program for Airplane Systems**

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# Background

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- Aging wiring safety concerns as a result of TWA Flight 800 accident.
- FAA formed Aging Non-Structural System Study team to address issues raised by White House Commission on Aviation Safety and Security.
- FAA Aging Structures Program expanded to include wiring—Aging Transport Non-Structural System Plan was developed.
- Aging Transport Systems Rulemaking Advisory Committee (ATSRAC) was established to facilitate the completion of the Aging Non-Structural System Plan.



# ATSRAC Members

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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 (advisor)
10. PEMCO
11. National Air Disaster Alliance/Foundation
12. AECMA
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 Manufactures Association
21. International Association of Machinists



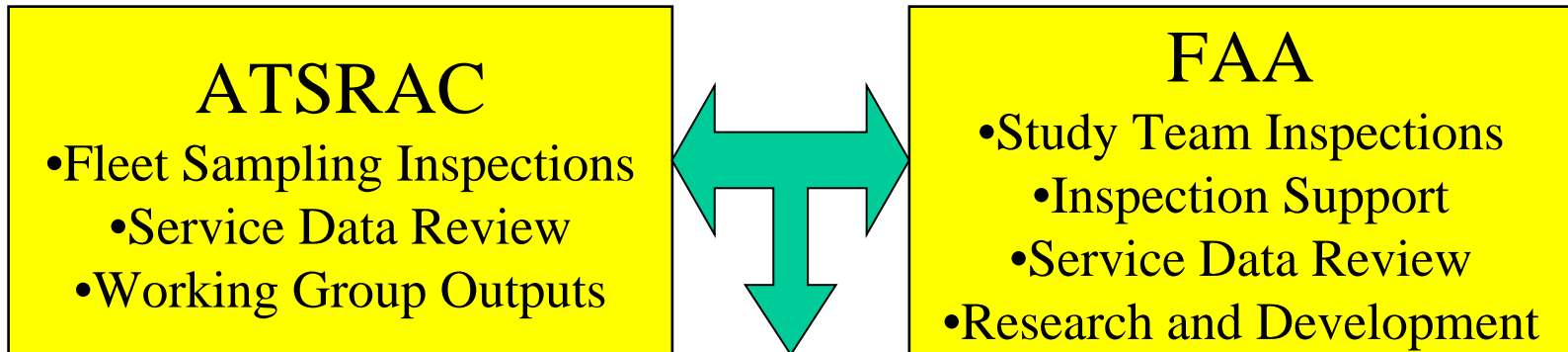
# ATSRAC Initial Tasks

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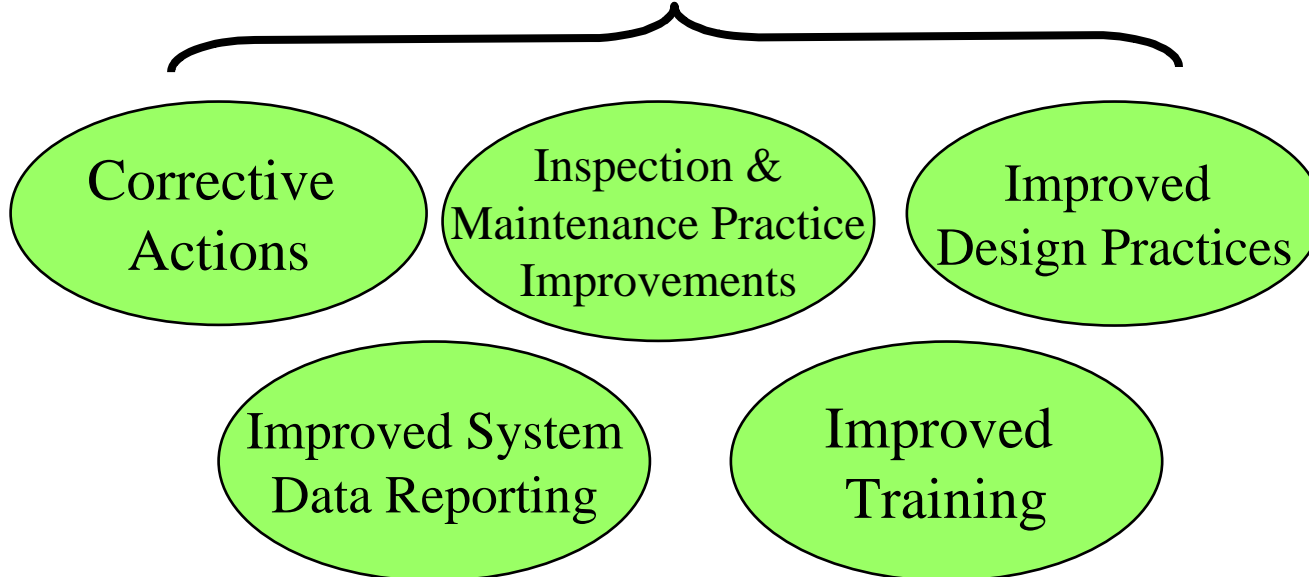
- Task 1: Sampling inspection of the Fleet
- Task 2: Review of fleet service history
- Task 3: Improvement of maintenance criteria
- Task 4: Review and update standard practice for wiring
- Task 5: Review air carrier and repair station inspection and repair training programs



# Activities and Outcomes



## Products





# ATSRAC Status

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- Initial tasks completed and approved in January 2001.
- ATSRAC is now tasked to assist in implementation and harmonization of Enhanced Airworthiness Program for Airplane Systems (EAPAS) objectives.



# Wire System Facts

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- “Age” is not the sole cause of the wire degradation.
- The probability that inadequate maintenance or repair, contamination, or mechanical damage has occurred to a particular wiring system will increase over time.



# EAPAS Implementation Plan

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



# Enhancement Categories

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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 Tasks

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



# ATSRAC New Tasks

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- The FAA is proposing the following tasks to improve management of wire systems:
  - Improve wire system certification requirements
  - Enhance wiring maintenance procedures and instructions
  - Enhance and augment current training programs
  - Standardize the format of Standard Wiring Practices Manual
- These tasks are based on recommendations from ATSRAC original tasks



# EAPAS Implementation Plan Structure

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- Section 1. Introduction
- Section 2. Strategy for Implementing the EAPAS Plan
- **Section 3. Strategies**
- Section 4. Conclusions
  
- Note: Includes Mechanical Systems Studies



# 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>2<sup>nd</sup> Q 2001</p>	<p>IVT</p>	<p>Second IVT scheduled for June 12-13, 2001</p>



# EAPAS Strategies - examples

Table 5: Design Schedule (D)

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



# EAPAS Status

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- The EAPAS implementation plan has been approved and is ready for publication.
- The EAPAS Near-Term actions are well underway and being successfully accomplished.
  - Aircraft Wiring Practices: Training + Job Aid on internet  
(Video/Self-study materials: 1-580-234-2845 or 1-800-443-3827, course No. 25827)  
(<http://www.academy.jccbi.gov/AIRDL/wiringcourse>)
  - Policy: “Approval Criteria for Wiring Installation Drawings”
  - Workshops for Engineers and Inspectors
- ATSRAC working groups are formed and commencing their assigned tasks.



# Commitment to Harmonization

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- FAA is committed to harmonization with JAA and Transport Canada
- New ATSRAC tasking requires coordination with ARAC to ensure harmonization is maintained



# FAA Commitment

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- FAA fully engaged with implementation of the EAPAS plan.
- Oversight Committee of senior FAA management has been formed with responsibility to:
  - Ensure all goals of EAPAS are accomplished adequately and on time.
  - Provide necessary support, resources, and budget to the EAPAS to meet commitments.
  - Ensure that EAPAS has appropriate priority.



# Conclusions

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- Cooperation and participation of international airworthiness authorities and industry is vitally important.
- Implementation of the EAPAS near-term and longer-term improvements will mitigate the potential safety concerns in aircraft wire systems.