

ATSRAC TASK 6

WIRE SYSTEMS

HARMONIZATION WORKING GROUP

Wire System

A Wire System is an electrical connection between two or more points including the associated termination (e.g., connectors, terminal block, splice, etc) devices and the necessary means for its installation and identification

WSHWG Members

FAA

JAA/CAA

JAA/LBA

JAA/DGAC

TRANSPORT CANADA

AIRBUS

ALPA

BOEING

BOMBARDIER

BRITISH AIRWAYS

CESSNA

DASSAULT

DELTA AIRLINES

KELOWNA FLIGHTCRAFT

SAE

THALES AVIONICS

TYCO ELECTRONICS

The WSHWG will

- Establish procedures to coordinate with the ARAC ESHWG and the Systems Design and Analysis HWG
- Coordinate with the working groups of ATSRAC Task 7 SWPM HWG, Task 8 Training, and Task 9 EMP for Systems HWG, and others as appropriate

WSHWG

Task 6.4 FAR/JAR

Review all 14 CFR part 25 and JAR 25 requirements and ATSRAC and ARAC recommendations related to wiring systems. Submit recommendations consolidating existing paragraphs and creating a new section dedicated to wire system requirements.

WSHWG

Task 6.4 Status

- **New Part 25 Section H - Wiring Systems**
- **Word Searched and Reviewed FAR/JAR Part 25**
- **Preliminary Cut on Applicable Paragraphs**
- **To-date More than 25 Were Identified**
- **Target for Complete Identification -- This Week**

FAR/JAR Shopping List

FAR 25.581(b)(1)	Lightning Protection (Bonding and Grounding)
FAR 25.831(b)(1, 2)	Ventilation (Hazardous Gases Concentrations)
FAR 25.855(d)(e)	Cargo or Baggage Compartment
FAR 25.863(b)(3)	Flammable Fluid Fire Protection
FAR 25.869(a)(2, 3, 4)	Fire Protection Systems (Firezone cable, wire insulation flammability)

FAR/JAR Shopping List

FAR 25.903(b)(d)

Engine Isolation
(Separation)

FAR 25.1301(a)(b)(c)(d)

Function and Installation
(Wire and equipment
installation and marking)

FAR/JAR Shopping List

FAR 25.1309(a)(b)	Equipment, Systems and Installation (Separation)
FAR 25.1316	System Lightning Protection
FAR 25.1351(b)(1, 2), (d)(1, 2)	Electrical System & Equipment (Separation)
FAR 25.1353(a)(b)	Electrical Equipment & Installation (Separation)
FAR 25.1355(a)(c)	Distribution System (Separation)
FAR 25.1357(a)(c)	Circuit Protective Devices
FAR 25.1431(c)	Electronic Equipment (EMI)

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Task 6.5 AGING

Identify design and certification requirements for a new wire system rule that **would account for aging effects.**

These requirements will be based on the ATSRAC recommendations contained in the Intrusive Inspection Report, Chapter 7, dated January 2001.

Use of the term “aging”

Age is not the sole cause of the wire degradation we call “aging.” The probability that inadequate maintenance, contamination, improper repair, or mechanical damage has occurred to a particular wiring system will increase over time. Therefore, “age” includes the breakdown of inherent characteristics of wire as a function of time and the effect of maintenance, contamination, improper repair and mechanical damage.

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Task 6.5 Status

- Reviewed ATSRAC Inspection Report, Chapter 7
 - **It Identifies Interacting Conditions/Flaws that May Lead to Unacceptable Condition**
 - **Specific Recommendations Offered (13+ Pages)**
- Identified Relevant Recommendations and Assigned to Task Groups

WSHWG

Task 6.6 SAFETY

Identify requirements to **conduct wire system safety assessments**. Review Sec. 25.1309, AC 25.1309-1A (or latest revision), corresponding JAR-25 material, and related ARAC recommendations and recommend, if appropriate, particular methods of compliance with Sec. 25.1309 that should be mandated in a new wire system rule.

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Task 6.6 STATUS

- Task Group is Established
- Running Behind Schedule

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Task 6.7 SEPARATION

Review existing FAA and JAA guidance, related ATSRAC and ARAC recommendations, and industry documentation and guidance for **wire separation** requirements.

Recommend, if appropriate, a comprehensive wire separation regulation (in addition to 25.1353).

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Task 6.7 STATUS

- Preliminary FAR/JAR Review Finished
- Identified Relevant Paragraphs for New Rule
- Less Progress than Planned

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Task 6.8 IDENTIFICATION

Recommend requirements for **special identification** of wire and/or wire bundles based on the airplane level of effect of failures of systems contained in a wire bundle.

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Task 6.8 STATUS

- Group Split if ALL Wires vs Wire Bundles
Needs Special Identification
- Less Progress than Anticipated

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Task 6.9 ADVISORIES

Review and revise, as appropriate, existing advisory material, guidance and policies and related ARAC recommendations on design and installation of wiring systems, in consideration of aging effects on wiring noted in previous recommendations submitted by ATSRAC.

AC/ACJ Shopping List


AC 25.10	Guidance for Installation of Miscellaneous, None Required Electrical Equipment
AC 25.16	Electrical fault and Fire Prevention and Protection
AC 25.23-2	Flammability Tests
AC 25.135(6)(d)	Power Plant Installation & Fire protection test methods
AC 25.1309-1A	System Design and Analysis

AC/ACJ Shopping List

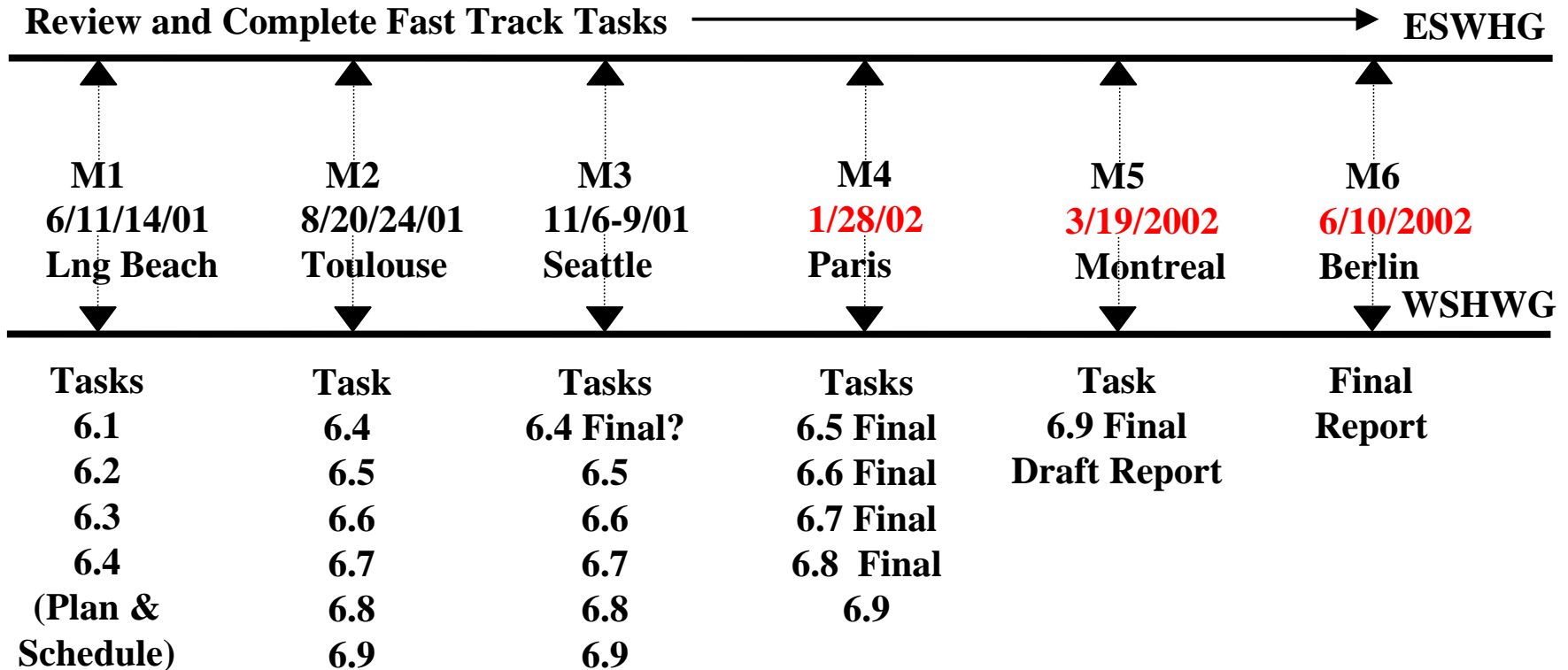
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|--------------------------------|--|
| AC 43-13-1A-1B
(Chapter 11) | Acceptable Methods,
Techniques, and Practices
(Aircraft Inspection and Repair) |
| AC 43-13-2A | Acceptable Methods, Techniques,
and Practices (Aircraft Inspection
and Repair) |
| AC 65-15A,
(Chapter 11) | Airframe & Powerplant Mechanics |

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Task 6.9 STATUS

- Preliminary List of AC/ACJ's Identified
- Last Task -- Dependent on Timely Completion of Tasks 6.4  6.8

WSHWG Timeline Summary



- Submit recommendations to FAA as completed
- All WSHWG reports must be ready by the July 2002 ATSRAC meeting