

14 June 2002

To: Aircraft manufacturers

Subject: Specification requirements of aircraft electrical wire

As part of the FAA's Enhanced Airworthiness Program for Airplane Systems (EAPAS), the following information regarding specification requirements for electrical aircraft wire is being collected by Raytheon Technical Services Company (RTSC) under contract to the FAA. RTSC is acting as an independent data collection agency contracted by the FAA technical center, in order to be able to provide a non-regulatory technical assessment of current wire specifications. Reports, including data and recommendations will be provided to the FAA. Use and presentation of the data will be agreed upon by RTSC and each company.

The purpose is to gather the current and past specification requirements for airframe wire, to identify performance requirements of wire that have not been incorporated into current specifications, and to make recommendations that will assist the FAA during the development of a performance based specification for electrical aircraft wire. The following information is needed to assist us in making the proper recommendations to the FAA.

1. The design guidelines used to place specific requirements on the wire installed on the aircraft.

Note: It is assumed that in most instances the design guidelines have been incorporated into the specification requirements. If this is the case, providing the information from the specifications should provide sufficient information for this task.

2. The specification requirements for electrical wire that have been employed in your airframe designs for commercial transport aircraft.

Note: Many of the specification are very similar to the military specifications of the corresponding wire type. We are using these as the basis of the requirements for the wire performance specification. Any additional requirements that are expressed in your specifications beyond or different from what are in the military specifications need to be identified in order to make appropriate recommendations to the FAA.

Attached are a survey and a spreadsheet that lists many of the specific requirements for some of the wire types. Please identify the specific requirements and methods for each of your airframe wire types that are used or have been used over the past 30 years. You may use the military specifications as the baseline by defining the specification, then listing any differences.

If it would be easier, copies of the specifications may be provided in lieu of the information requested by the survey. Please provide the information by August 31, 2002 so that the analysis can be completed in a timely manner, and an appropriate recommendation can be made to the FAA. Please contact me for additional information or if you desire to have certain information kept confidential.

Thank you for your assistance.

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DIFFERENCES IN WIRE SPECIFICATION REQUIREMENTS SURVEY

General purpose electrical wire from the following military specifications and similar commercial specifications are used in commercial and military aircraft:

- MIL-W-22759 - Fluoropolymer-Insulated (includes TKT type composite wire.)
- MIL-W-81044 - Crosslinked Polyalkene, Crosslinked Alkane-imide, or Polyarylene Insulated
- MIL-W-81381 - Polyimide-Insulated
- MIL-W-5086 - Polyvinyl Chloride Insulated

Comparison of Specifications:

For each of your internal aircraft wire specifications, please respond to the following questions. It is not necessary to perform this analysis on the cable types. For convenience and ease of analysis, a separate copy of this survey should be used for each specification. **The spreadsheet provided should be used to compile all of the data. Examples of data formatting are provided in the spreadsheet.**

Original Equipment Manufacturer Specification: _____

Similar Military Specification: _____

1. Are the requirements and test methods in your specification the same as the requirements and test methods in the military specification? If no, answer the next three questions.

2. For requirements that are imposed in both the military and your specifications, what differences exist? (Please document the differences in the spreadsheet provided.)

3. Are there requirements imposed in your specifications that are not imposed by the military specifications? (If yes, please document in the spreadsheet provided.)

4. Are there requirements imposed in the military specifications that are not imposed in your specifications? (If yes, please document in the spreadsheet provided.)

5. Are there other performance requirements for wire that should be incorporated into a specification. (Please provide justification, data, or other information if possible.)

Submitted by: _____

Company: _____

DIFFERENCES IN WIRE SPECIFICATION REQUIREMENTS SURVEY

Date: _____