

AeroElectric Connection

Medicine River Press

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In 1986, I had worked in general aviation nearly 25 years before my first visit to Oshkosh, the Mecca of aviation. I was taking advantage of an invitation from good friends Bill and Celesta Bainbridge, Newton, Kansas, who own and operate B & C Specialty Products. I had done design work for Bill on system components for Voyager; a fine example of what a few dedicated individuals can accomplish with support from interested believers. However, Oshkosh was a mind-boggling revelation from the opposite end of the amateur built airplane spectrum. Before OSH '86, my impression of amateur built aircraft lingered from 1965 when local EAA member, Dick Guide, flew his VW powered Headwind into Cessna Field on a Saturday morning. All the overtime engineering people turned out to see his little airplane (*It certainly was cute. However, we were all seriously involved in the production of "real" airplanes!*). In stark contrast, twenty one years later, the airplanes I saw at OSH were fine specimens of leading edge aviation design and technology.

I learned something else at Oshkosh: While working with Bill's customers in his booth, I observed that things electrical seemed to be the least understood of all aircraft systems. After some deliberation I realized that two most personal tasks of building an airplane are choosing a paint scheme and designing an electrical system! Other aspects are fixed by airframe design. However, the box of "tinker toys" from which one selects electrical system components is huge!

For some builders, duplicating a system from a "cookbook" is sufficient. However, a very personalized, fully equipped, knob-twister's delight is not an uncommon sight at Oshkosh! Further, many builders wish to take advantage of new technology as it becomes available, generally yielding more performance at equal or lower cost; a nearly non-existent option for most owners of certified iron. On the way home that year, I began outlining a way to bring benefits of modern systems components and design philosophies within practical reach of the amateur airplane builder and maintainer.

First, it had to be more than a book. Books are static things bound between hard covers; once printed they cannot change. Further, if books alone would do the job, schools and universities would be extraneous. It should foster UNDERSTANDING and last, it had to be RELEVANT to reader's needs. Working within these requirements, the AeroElectric Connection was conceived. The AeroElectric Connection is an information service, now 6 years old and 500 readers strong. The printed portion looks like a book but

it's published in a 3-ring, loose leaf binder format permitting periodic updates. Presently, thirteen chapters cover d.c. fundamentals, batteries, regulators, alternators, over-voltage protection, grounding, circuit protection, electrical instrumentation, switches and contactors, wire, wire termination, antennas and feedlines, and lighting. Appendix A lists vendors of services plus new, used and surplus components of interest to builders. Another appendix contains do-it-yourself avionics projects which may be scratch-built, kit-built or purchased assembled and tested. An expanding group of power distribution diagrams describe several design philosophies unique to plastic and metal airplanes. Chapters are being planned and written on systems instrumentation, motors, audio and transmitter control systems, custom wirebook development, failure mode effects analysis and electrical noise management.

Perhaps most important is the consulting service. Since we cannot all sit down in a classroom together, questions are answered by active dialog with readers. Over the years I've become dependent upon reader contact to guide my writing; it is impossible to answer questions when you don't know what they are! While most of the words presently contained in the 'Connection's pages are my own, it is not intended to be a gospel according to Bob Nuckolls; alternate views and concepts are welcome. Conversation and letters with readers has strongly influenced directions taken by the 'Connection. The 'Connection is intended to be a repository for good information gathered for the benefit of all.

The 'Connection fills a gap between "cookbooks" and engineering texts; not light reading, but it is fun. We don't get into discussions of sub-atomic particles but we do take things apart far enough to have an idea about how they work. The style is conversational and I often use anecdotes from my experience in Wichita aircraft manufacturing. From time to time, "Hot Flashes" (newsletters) are mailed when important subjects must be addressed between regular issues of the 'Connection.

Material currently in print, including all past newsletters, totals about 270 well illustrated pages. \$42.00 (\$54.00 overseas) gets a new subscriber all materials in print, a subscription for the next regular issue of new chapters plus all intermediate newsletters. Overseas airmail is extra. Calls to (316) 685-8617, Compuserve E-mail at 72770,552, or letters to The AeroElectric Connection, 6936 Bainbridge Road, Wichita, Kansas, 67226-1008 are always welcome. Bank cards accepted.

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About the AeroElectric Connection

Real Time Consulting Service: Subscribers are encouraged to write or call with questions or comments. Without *your* participation, we don't know what to write about!

Newsletters: Hot Flashes from the AeroElectric Connection are mailed periodically to cover timely topics and error correction in other printed materials. When the book is finished, the newsletters will step up to a quarterly publication rate.

The Book: Materials in print now totals about 200 pages with *lots of illustrations*. The book is 3-ring, loose leaf binder format to permit timely update of information. Unlike books nailed between hard covers which cannot change, the 'Connection is a dynamic work which grows with new technology and our collective experiences. Chapters presently cover:

Chapter	Topic
1.....	D.C. Fundamentals
2.....	Batteries
3.....	Engine Driven Power Sources
4.....	Voltage Regulators
5.....	Grounding
6.....	Over voltage Protection
7.....	Electrical System Instrumentation
8.....	Wire Selection and Installation
9.....	Wire Termination and Connectors
10.....	Circuit Protections
11.....	Switches Relays and Contactors
12.....	Lighting and Lighting Controls
13.....	Antennas and Feedlines
14.....	Temperature Instrumentation
Appendix A	List of suppliers
Appendix C.....	Catalog of Products and Services
Appendix H	<u>Hot Flash</u> Newsletters
Appendix K	Do-it-yourself Avionics
Appendix Z	Power Distribution Diagrams

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