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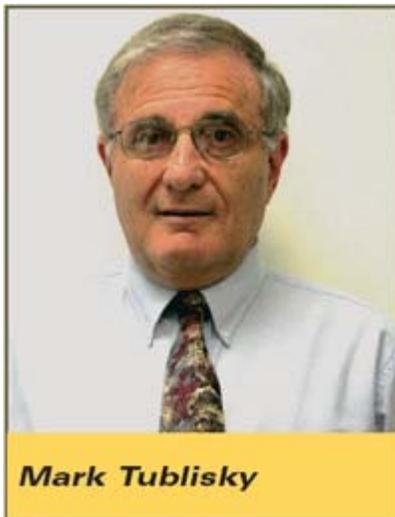


Will "Wild" Frequency Become the Standard In the Wild Blue Yonder?

By Mark Tublisky, President, Behlman Electronics
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Industry VIEWPOINTS:

Power requirements for the aviation industry are changing to meet the evolving needs and capabilities of a full range of aircraft, ground support, and test equipment. For example, we have seen an increase in requests for AC power units with varying ("wild") frequency capabilities of 350 Hz to 800 Hz, while 400 Hz has long been the dominant standard.



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Why would the aviation industry change from the 400 Hz standard to the varying wild frequency of 350 Hz to 800 Hz? Engine speed has a direct affect on aircraft AC power generation. Although the majority of aircraft flight time is at engine speeds comfortably producing a 400 Hz power frequency, the frequency can vary from 400 to 800 Hz during takeoff and landing, and is likely to vary during many combat maneuvers as well. To keep the AC power frequency at a constant 400 Hz requires equipment to convert variable-speed mechanical power produced by the engine to constant-frequency AC power traditionally used by aircraft systems. This conversion equipment adds weight, maintenance, cost, and complexity that can also contribute to reduced reliability of the aircraft. If all aircraft systems could operate at the wild frequency (400 to 800 Hz), this extra conversion equipment could be eliminated.

Will the variable wild frequency will become the standard aircraft frequency? Engineers have for years been working toward an all-electric aircraft. The concept is called "power-by-wire" or "fly-by-wire" when electrical power moves aircraft flight surfaces. Having an all-electric aircraft would eliminate complex, heavy, maintenance-intensive, and costly hydraulic systems. While no all-electric aircraft is in routine military use today, steps have been taken

in that direction with electrohydrostatic actuators (EHAs) that combine both electrical and hydraulic power. By working toward having fully-operational all-electric aircraft and continually striving to reduce weight, maintenance, complexity, and costs, the industry is also improving reliability. One of the keys to achieving this desirable goal is the introduction of more and more aircraft systems able to perform to spec from the variable wild frequency.

What can be done for aircraft equipment that doesn't presently operate from the variable frequency? Companies like Behlman that make rugged aircraft frequency converters can take the variable wild frequency provided by the aircraft AC power generators and convert it to the fixed frequency required by most current aircraft equipment. That lets aircraft manufacturers have their cake and eat it too, while systems manufacturers catch up to the growing use of wild frequency in the wild blue yonder.

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▶ 53

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