

Flying High

OECO turns to Fluke for mission-critical aerospace power supply testing

Application Note



When the Boeing Co.'s new 7E7 takes to the skies in 2007, it will be the most advanced commercial jetliner ever produced. From its space-age composite body and electronic guidance systems to its thousands of miles of electrical wiring and sophisticated communications capabilities, the 7E7 will set new standards for future generations of commercial flight.

All in a day's work for Oregon-based OECO

OECO, of Milwaukie, Ore., designs and manufactures electromagnetic devices and power conversion products for the world's most sophisticated electrical and electronics systems. F16 and F18 U.S. fighter jets, advanced satellite and GPS systems, and commercial jetliner programs that stretch from the early days of the Boeing 707 straight through to tomorrow's 7E7 count on OECO, which has been supplying major defense

electronic contractors, commercial aerospace customers and the medical industry with highly engineered power conversion products since 1946.

In fact, Boeing Commercial Airplanes, based in Seattle, WA, has awarded OECO an exclusive long-term agreement to provide proprietary transformer rectifiers, aircraft light dimmers, autotransformers and general magnetics for all of its current commercial aircraft programs, including the 737, 747, 757, 767 and 777, citing its excellent record of delivery, quality and service.

The company provides power supplies, transformer rectifiers, aircraft light dimmers, autotransformers and general magnetics for all Boeing military aircraft as well, including the C-17, F-15, F-18, and F-22.

OECO started life as a transformer manufacturer for Boeing. Over the years it expanded into power conversion. Today it is a \$30 million company with 300 employees offering AC and DC power supplies, magnetics, molded cable and connector assemblies, circuit card assemblies and more.

That's a heavy responsibility. Nowhere is accuracy and reliability more mission-critical than in the power supplies that form the backbone of medical diagnostic equipment, aerospace and space programs, and telecommunications systems. Customers such as BAE, Boeing, Medtronic, Hamilton Sundstrand, Sikorsky, Lockheed Martin, Honeywell, Northrop Grumman and Raytheon turn to OECO for power supply products they can trust.

That's why OECO counts on Fluke Corp

OECO uses Fluke test and measurement equipment throughout the design, manufacturer and testing of its product lines. Because OECO equipment is designed to the most exacting quality standards, each component undergoes rigorous analysis from the moment it is designed to the time it is delivered to a customer.

Whether they're testing extreme temperatures, humidity, shock and vibration or altitude, acceleration or the impact of salt,

OECO test engineers, calibration lab and quality control teams rely on Fluke DMMs and an array of Fluke equipment, from graphical multimeters, Scopemeters and digital temperature probes to data loggers and calibrators.

"We pretty much researched it inside and out," said Greg McClung, OECO director of magnetics engineering and manufacturing engineering. "We don't go anywhere but Fluke for our handheld DMMS and for much of our other test equipment. The technology suits us perfectly."

The combination of Fluke equipment's range of capabilities and ability to perform multi-functions with its record of exactness and reliability are critical to the results OECO demands. "We work to 100 percent testing, whether it is for vibration, temperature cycling, thermal shock or whatever," McClung said.

No kidding. One test alone takes a power filter module, used to condition aircraft generator power, from -55 °C to 85 °C. It takes six Fluke handheld DMMs just to conduct the test, taking measurements for input voltages, output voltages and voltage drop, each at extreme temperatures.

"We torture-test everything we do," McClung said.

Several power supplies built by OECO support avionics upgrades for various aircraft, including the F-18, the C-17 and the Ch-47. OECO uses Fluke test equipment to perform a battery of acceptance tests – variable input voltages, AC and DC output voltage and output waveforms, including noise and ripple. Reliably is mission-critical. If a power supply fails and the avionics system quits working, the aircraft and its pilot are in jeopardy.

Somewhat surprisingly for a high-technology company, one of OECO's strengths is its ability

to span generations of electrical and electronic innovation. Not only must it be able to produce the most sophisticated power supplies, it is called on to support earlier life-cycle products as well.

The story is that John Fluke Sr., the larger-than-life founder of Fluke, used to drive down personally from Washington State to Oregon to make sales calls in the early days of the Fluke/OECO collaboration. Not long ago, McClung visited Fluke's world headquarters in Everett, Wash., and toured the Fluke museum devoted to the early days of the Fluke company.

As much as OECO reveres the durability of Fluke legacy equipment, it also keeps a close eye on Fluke's newest equipment. McClung's teams are currently eying Fluke's line of Scopemeter handheld oscilloscopes. "They're so small and powerful, and in many situations here, it is important that we be able to move freely around," McClung said.

Fluke. *Keeping your world up and running.*

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Printed in U.S.A. 3/2004 2140148 A-ENG-N Rev A