HOW IS YOUR AIRCRAFT PERFORMING?

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AEROCOR

For most of the history of aviation, correctly diagnosing in-flight maintenance problems has been a difficult process. A pilot would either test the limits of his or her vocabulary or mechanical singing abilities, while a technician would do his or her best to interpret. Perhaps that noise the pilot was attempting to describe was a flap? Or perhaps it was the landing gear in motion? To the untrained ear, these can sound similar, and serve to illustrate that this type of diagnosis can be more of an art than a science.

Today, modern computers provide the tools necessary to bring precision and structure to the discussion, giving technicians access to objective data. However, until recently, these types of tools were expensive, and mostly limited to large turbine aircraft.

The "entry level" side of aviation witnessed the adoption of basic digital instruments in the early 1980s, which evolved into basic data recording devices during the 1990's. Data logging and analysis arguably went "mainstream" with the introduction of the Avidyne Entegra equipped Cirrus SR series aircraft in the early 2000's. For the first time, pilots and mechanics could easily extract engine data and review it with an online tool available at CirrusReports.com.

While the engine data provided by the Cirrus is immensely helpful for engine-related maintenance, more advanced aircraft have a different set of needs. Advanced aircraft include additional equipment, such as de-ice systems, pressurization systems, and more. Keeping all of these systems healthy requires periodic attention, but without a computer to monitor each one, diagnosing problems can still be a challenge.

Enter the Eclipse 500. Unlike previous general aviation aircraft, the Eclipse utilizes the advances in affordable computers and offers a level of integration that was previously reserved for the "big boys." Highly detailed aircraft data is collected and saved with the obvious intention of allowing mechanics and owners a more detailed look into the health and performance of the aircraft. Even now, 10 years after the introduction of the aircraft, the Eclipse stands alone among light aircraft in its ability to report data about internal systems. The one limitation, however, has been the "closed architecture" of the platform. Until now, in order to actually review any data coming out of their aircraft, owners were forced to submit it to an Eclipse-specific maintenance center, or to purchase an expensive Eclipse-specific maintenance computer. This is not an impossible task, but certainly a barrier to those interested in a more casual look "under the hood."

Fortunately, a new solution has arrived from AEROCOR: a free data analysis tool available at e500reports.com. Like its twin sister (CirrusReports), the site offers an owner the ability to extract data from their aircraft and view it in a more meaningful way. What's different about the Eclipse is

the volume of data available. Not only is engine data available (such as ITT temps and N1 power settings), but many other data streams from around the aircraft are collected as well. This data includes the obvious, such as aircraft altitude, airspeed, and OAT, as well as many other detailed pieces of information, like engine nacelle de-ice temperatures, flight control trim positions, VCS inlet and exhaust door positions, left & right VORE door positions, fuel temperatures, and more. For the first time, Eclipse aircraft owners now have the ability to easily review the data stored in their aircraft.

"We're really excited to offer this product to the community" notes Justin Beitler, AEROCOR co-founder and CEO. "By providing an easy method of extracting the data, owners can finally realize the benefit that the Eclipse platform has promised." But the benefits don't stop there. AEROCOR also wanted to streamline certain tasks associated with aircraft ownership and maintenance, so the site was designed to provide additional functionality. As an example, the site can automatically extract, catalog, and report Engine Condition Trend Monitoring, or "ECTM" data. ECTM reporting previously required installing a satellite telephone into the aircraft or required the pilot to manually record and report data. It can now easily be accomplished using e500reports. Additionally, the site provides the option to automatically share files with all of the major Eclipse maintenance facilities, providing a unified location for transferring the large data files. And with unlimited storage space, users can retain a full catalog of flight history for their aircraft, often useful when trying to determine if a problem has previously appeared.

AEROCOR considers the site to be a constantly evolving product, and is always looking for additional input. "We've already received a very positive response and a lot of feedback from Eclipse owners," says Beitler. "[This] translated to some meaningful improvements of the system including increasing the sample rate of the Eclipse data down to 1 data point every second." More generally, AEROCOR sees a need for better data analysis across the entire light jet segment and has already expanded the website to support both the Citation Mustang and Cirrus SF-50 Vision Jet. And while future enhancements are already planned for the coming months, AEROCOR is actively seeking additional feedback and suggestions. Eclipse aircraft owners and pilots who are looking to get more information about the performance of their aircraft are encouraged to visit the site, and send their suggestions to atc@flightdata.com