

# Lycoming's iE2

Engine architecture with vision for the future

BY BETH E. STANTON

**LYCOMING PISTON ENGINES** power more than half of the world's general aviation aircraft. The newest innovation is the iE2, the first integrated electronic piston engine. The design philosophy was to create an electronically controlled, fuel-injected engine that was simple to operate. A single lever enables the pilot to manage mixture and propeller control. Automatic and optimized fuel leaning improves fuel efficiency. The iE2 starts easily, has automated pre-flight checks, and is self-monitoring. State-of-the-art computer technology reduces pilot workload and increases safety. "It really changes the way you think about flying," said Marolous Cebulka, Lycoming's director of business development. "A good portion of what a pilot does is to look at engine instrumentation constantly. It really takes away that burden and allows you to simply aviate. If you're on final approach and you're in the muck and things are kind of ugly, you don't have to worry about the engine anymore. You are not going to be permitted to damage it; it will protect itself."

## FULL CIRCLE

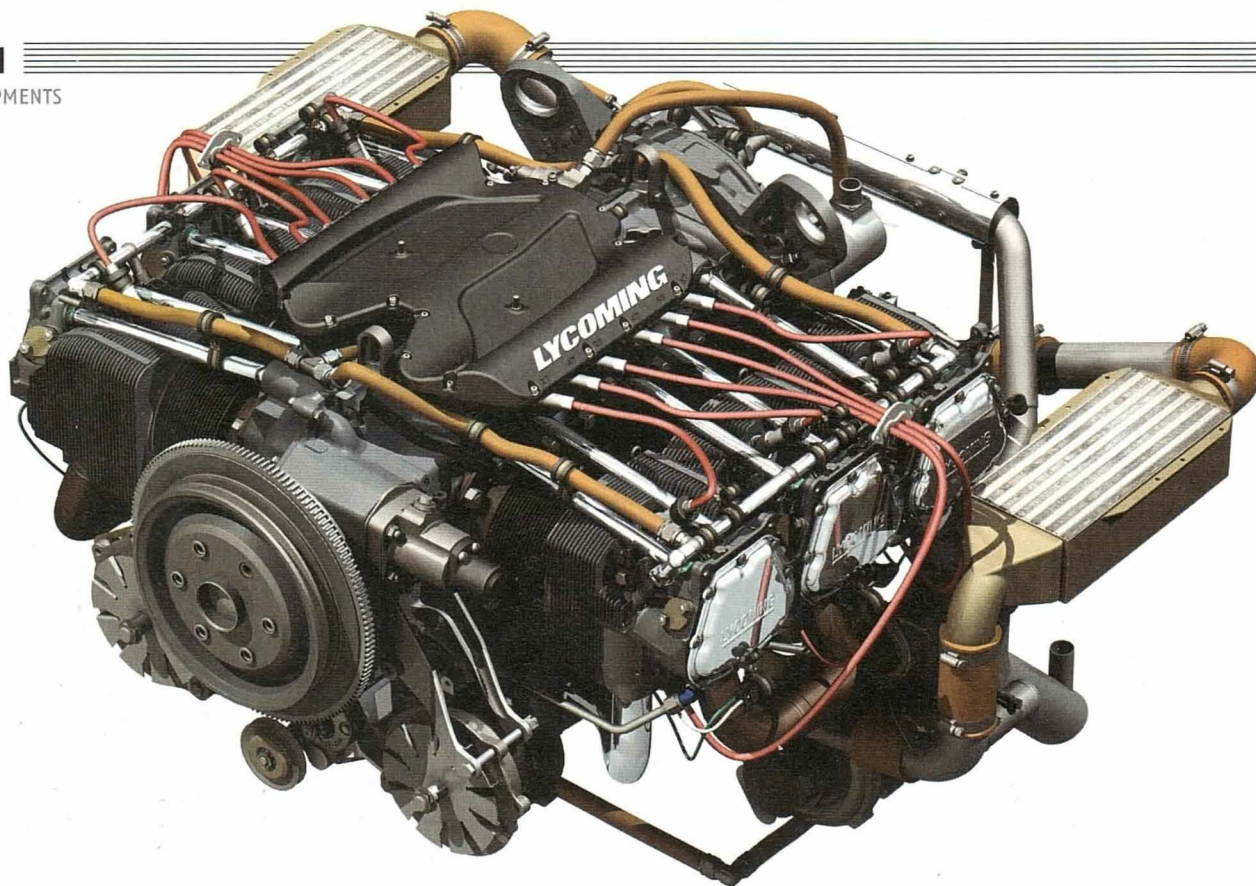
The 350-hp YTEO-540-B1A engine first flew on a piston Lancair Evolution in 2008. Lycoming was then approached by Northrop Grumman for an engine to power its optionally piloted Firebird

intelligence-gathering platform. An iE2 engine of the same design was used in the Firebird in a pusher as opposed to tractor configuration. "It was very serendipitous that at the same time we were bringing together the iE2 technology that we secured interest from both the experimental aviation side and the optionally piloted vehicle side," said Mike Kraft, senior vice president and general manager of Lycoming. "It's a great synergy between those two worlds. It gave us a means to build hours and continue the ongoing development of the project." Lycoming has now come full circle with the iE2 in rate production for Evolution aircraft.

## ENGINE MANAGEMENT

Electronic engine management on the iE2 is controlled by four main actuation systems: fuel injection, ignition, manifold pressure, and propeller pitch/engine rpm.





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