

“Yankee Oscar” is an Antares 20E electric-powered glider, flown by Dave Nadler of Boston Massachusetts. Antares 20E is the worlds first series production certified electric aircraft and has been in production for several years. About 50 are now delivered and flying in Europe, North America and Africa - Yankee Oscar is number 33.

Antares' Lithium-Ion batteries have enough energy to climb about 10,000 feet. The 57 horse-power motor is used for take-off, but Dave normally shuts the motor off after finding the first thermal – typically around 1,000 feet – leaving the remaining energy for reserve. Dave then flies all day using just the energy in the sky, and rarely uses the motor again.

The Antares propulsion is optimized for climbing and normally not used for cruise. Antares has a max glide ratio of 56 to 1 at 70 knots, so from 1 mile high it can glide 56 miles. At 100 knots it does 41 to1, and at 120 knots it does 31 to 1.

For AirVenture, Dave will climb at an initial rate of 800 feet, then retract the gear and reduce climb rate for improved efficiency. Today Dave will climb to around 1900 feet, shut down and retract the motor, then do a fly-by.

Modern gliders such as Antares are regularly flown hundreds of miles using just the energy in the sky. Dave's longest flight this year is about 450 miles, with an average flight of 245 miles and 4:45 aloft, always landing back home. Dave used the motor to return home only once this year – normally it is just used for take-off – but it sure is nice to have the reserve.

Dave flies the Antares mostly in competitions. At glider competitions, glider enthusiasts gather to see who can fly fastest

over courses of 200 to 400 miles each day. Typical winning average speeds are 70 to 90 mph, using just the energy available in the sky. On great soaring days gliders achieve average speeds over 100 mph using just the energy in the sky.

Soaring (another name for Gliding) is a great sport and a very inexpensive way to learn to fly. A student glider pilot can solo at age 14 and get an FAA license at 16. The largest glider operator in the USA is the US air force, who uses gliders for cadet training at the Air Force Academy in Colorado Springs. There are glider clubs and commercial operations all across USA. The Soaring Society of America has an Oshkosh Special introductory instruction package for \$89 – visit SSA.org on the web.

Antares is built by Lange Aviation in Zweibruecken Germany, south of Frankfurt. Lange Aviation also built the DLR-H2 research aircraft for the German DLR (Germany's NASA equivalent). The DLR-H2 is a hydrogen-powered derivative of the 20E, and the first aircraft to take off using hydrogen power.

Dave will fly the Antares at 150 knots (about 175 miles per hour) as he flies by, then gently pull up into a landing pattern. Glider pilots returning home from long flights always carry extra safety altitude, then speed up when the home airport is safely within reach. A fly-by and pull-up into the landing pattern is normal for racing gliders where local traffic permits this safely.

After flying a landing pattern, Dave will demonstrate extension of the Antares engine and propeller in flight. Normally the Antares motor is not used after the initial launch, but if the glider pilot finds himself low far from home, the motor is used to climb high enough to glide home. Dave will climb back to pattern altitude, stow the motor, and make a normal landing.

Dave is from Boston, Massachusetts. He's flown gliders 3200 hours over 30 years. Dave ran his consulting business for 18 years creating software and electronic products, and worked 5 years as a technology executive. Now Dave is “between opportunities” and flying the Antares as much as possible.