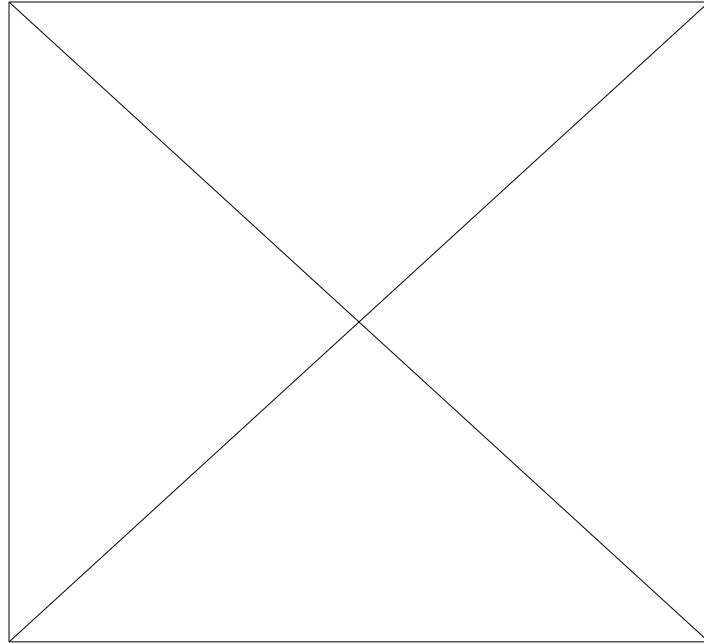


Update - How The Sky Cycle Drives

Fri, 15 Apr '05

Innovative Fly-Drive Vehicle's Complex Power Transmission

The other day, we introduced the Super Sky Cycle in an article titled "A Motorcycle with Altitude" which is The Butterfly, LLC's trademark for their innovative fly-drive vehicle. The Sky Cycle is licensed as a motorcycle for street travel, and as an experimental aircraft for air travel.



Aviation's history is replete with vehicles which promised to combine flying with driving. Every one of them is a compromise, or perhaps you could say a hybrid: it favors either its aeronautical parent or its automotive one. The Super Sky Cycle, beginning with a flying aircraft, is biased towards the sky.

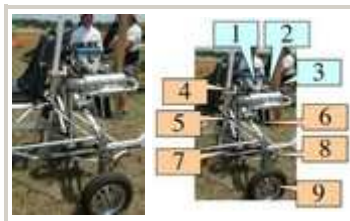
No one will mistake this trike for the ones that show up at Laconia, Sturgis or Daytona. But it still manages to have a certain outlaw rakishness.

It's an outgrowth of the popular Butterfly gyroplanes; in fact, all the components of the Sky Cycle can be retrofitted to previous Monarch and Butterfly gyros.



Let's See How It Works

These pictures, the first of the Sky Cycle chassis and automotive running gear, give you an idea of the complex but robust system that Larry Neal has developed for making his gyroplane drive.



The photo (above left) shows most of the drivetrain of a Sky Cycle. The slightly smaller version of the same photo in the right, has callouts that tell you what's what in the Sky Cycle's drivetrain. The blue ones relate to air propulsion, and the tan ones to ground.

1. Rotax 582 engine
2. Propeller Clutch (to be fitted). Allows stopping the prop for ground safety.
3. Propeller
4. Automotive clutch

5. Primary Drive (inside white tube)
 6. Shock/strut for G-Force Magnum landing gear.
 7. Secondary Drive (shaft with U-joints) 8. Final Drive (chain) 9. Drive wheel
- Not shown: Prerotator drive.



The next photo (above) shows the rear-drive geometry of the machine in detail. Note that this depicts the G-Force Magnum landing gear at the absolute rock bottom of its 22-inch stroke. When the aircraft is in flight, the gear dangles down, like the legs of a flying insect. On touchdown, the gear can absorb punishing g-loads with no hazard to machine or pilot. The one problem that has cropped up in ground testing to date has been vibration, which has been tracked to the secondary driveshaft universal joints. New shafts which replace these parts with dynamically balanced one are in preparation.



As the image (above) shows, the final drive is accomplished in classic motorcycle fashion: by chain. The system, despite its spindly look, is designed to handle significantly more power than the Sky Cycle's hard-working Rotax 582 is capable of putting out.

The Butterfly. LLC: A Business Update

The Butterfly, LLC exhibit at Sun-n-Fun is in a perfect position, inescapable by anyone who makes the long slog to Choppertown. Getting there is half the battle, as the trams are relatively infrequent and it's a tough walk -- and Choppertown could probably be better advertised nearer show center. But for those that get there, their first impression is the Butterfly exhibit.



A wide array of familiar faces (at least, in the rotorcraft community) congregate there, both out of curiosity about these new developments, and to see old friends now associated with Butterfly, a group that includes Larry Neal (of course), Brad King, Heron Souza and Kerry Cartier. (And I'm probably forgetting somebody). Heron told me that most of the initial batch of Butterfly/Monarch single-seaters has been sold, but that two-seat Golden Butterfly trainers remain in stock. (Some Golden buyers may have been holding out for the turbo option). So far, the company has been financed entirely privately -- out of Larry's pockets, primarily. The company that produces and finances Butterfly kits is seeking further investment. As previously promised, in the near future we're going to present more information on Larry's business plans, which are entirely as creative as this dual-purpose gyroplane drivetrain, but for the impatient reader who wants to see more of the business plan, we recommend you check out www.newhorizonscomponentsllc.com.
FMI: www.thebutterflyllc.com