OSIRIS MK2

OSIRIS' DISCUS-LAUNCHING MK2 HITS THE MARK

BY: ***Bob McGowan*** Photos BY: ***Trisha McGowan***

No motor, towline, or hill needed. The Osiris Mk2 is a discus-launched glider (DLG). Typical throws for a glider like this are around 130 feet, but the best athletes/pilots can top 200 feet. Once the glider is aloft the real fun is to ride thermals for enjoyable extended flights and sometimes speed down doing aerobatics when the urge strikes. The Osiris Mk2 delivers in all of these areas.

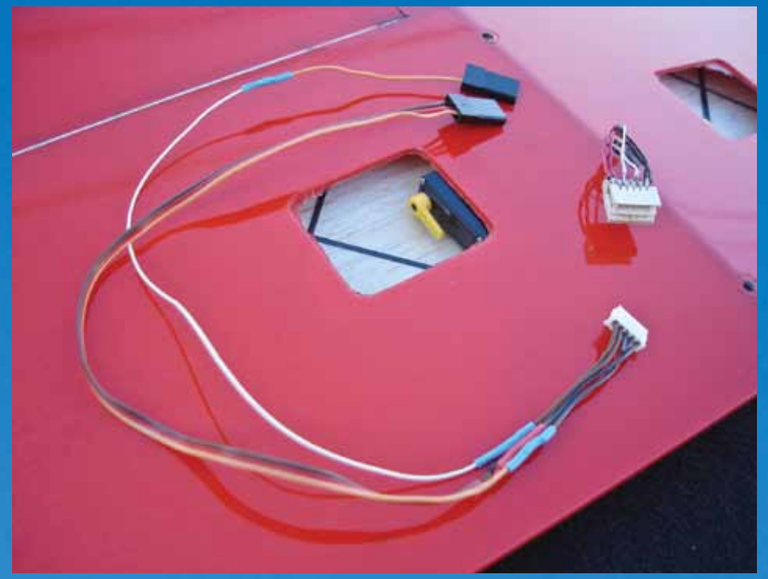
Most of the work is done at the factory. Once the tails are mounted, it is just radio install and hookup to get her flying.

Throw out anything you knew about the original Osiris and give this ship a close look. The design and construction has changed significantly, making the new Osiris Mk2 a strong contender in competition. The Osiris Mk2 comes from the same maker as the Gladiator 2. I have owned both models and I find the flat-land thermal capabilities of the Osiris Mk2 superior.

The Kit

We carefully opened the long box that the one-piece wing comes in and were immediately impressed with the mirror-like finish on the wing. Digging a little deeper, we saw that the fuselage was molded in one piece (unlike the typical pod-and-boom style) and was completely painted in yellow from nose to tail. Minutes later, we had the wing bolted on securely and the tails propped up to get a preview. What we saw looked like a mini version of the molded three-meter eye candy you see launching off electric winches. It certainly did not have the typical "industrial look" of every other DLG on the market. This ship has eye-popping good looks to be sure.

Inspecting things a little closer we noted that the wing was very stiff and had a "disser" crosshatch pattern of carbon strands deep inside the wing skins out of normal view. The boom felt nice and stiff, which is important for obtaining high, straight launches. This glider has some backbone behind its good looks.

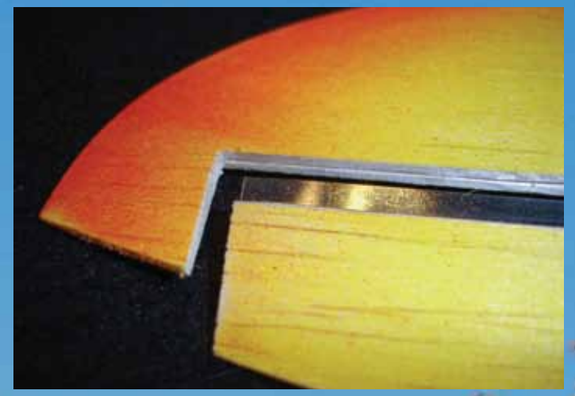


Wire harness ready to hard mount in wing and fuselage. Note significant weight can be saved by using fine gauge wire and by utilizing just one set of power and ground wires from receiver to wing connector.

In the Air

On the first day out we did not feel the Osiris was flying up to

Very thin servos are required for this wing. The Dymond 4.7 servo shown is glued to a "break away" 1/32 balsa floor with CyA (for easier removal if necessary). It is also secured to the bottom wing skin with a balsa shim and CyA to prevent wobble from the top skin flexing.



We used Mylar (overhead transparency sheet) for the rudder hinge. It is secured in the slot with CyA. I've found tape hinges don't stick too well to this lightly painted balsa.

The Osiris Mk2 is a nice handling design that can catch thermals for extended flights with ease. It's appropriate for relaxing sport flying or competition.

Orienting the Airtronics 94091 servos in a "T" formation and gluing them together made a very stable block that did not require any extra rails or bracing. We used a four cell 2/3 AAA size nickel metal hydride battery pack in 400 ma/hr capacity. Transmitter/receiver is the new Airtronics 2.4 gig system.

Airtronics 2.4g system features antennas long enough to extend out of the carbon pod and into the RF transparent wings. Antennas are pulled back into the guide tubes as wing is seated and then pushed into the hollow cavity of the wings after the plane is assembled.

its full potential. We then noticed there was a small bit of mold flashing along the leading edge of the wing.

Knowing that a good leading edge shape is extremely important to flight performance, I went home and sanded it smooth and round with fine sandpaper (400- then 600-grit). I did not even sand enough to go through the paint, but just enough to get rid of the small mold flashing ridge. Back to the field and the difference for slow speed flight was very significant. Now I could say this was a nice-flying model.

I fine tuned its center of gravity to my taste, taking much lead out of the glider's nose and moving the balance point well aft of the conservative point given in the instructions. In the end, we had zero nose weight in the model. Now we could slow it down for a good float and efficient thermal turns. After getting it dialed in, I was able to keep pace in the "all up last down" fun with my friends who fly respected competition models. The only time I would feel at a disadvantage would be against gliders that were in the sub-nine-ounce range being flown in dead air. In active air it is about getting to the lift and the Osiris has very good penetration and range. The Osiris was doing well enough that it was entered in our most recent local DLG contest and placed first.

Launching with the relatively wide winglets is a little different than the typical blade or peg system. Until we adjusted to it, the glider had a tendency to slip off our finger tips early. With a little

The pylon (pivot point) for the full flying horizontal stabilizer is an integral part of the factory molded fuselage saving the kit builder work.

We replaced the factory pull/pull control system with this simple pull/spring system. Size #16 rubber band with a 4" stretch provides the spring force for up elevator. The pull string from the servo overpowers the rubber band for down elevator.

Winglet or throwing peg? Actually it is both in this case.

Having the aileron control horn on top is less drag than the more common bottom horn method.

practice, it was not an issue. The launches are straight and high. When the canopy starts flying off on launch, you'll know you are at competition velocity. We found we needed a bit of tape in addition to the factory-installed hold-down rod. Other than that, the Osiris feels solid on launch.

The Osiris Mk2 is one of the more quiet DLGs on high speed flybys, which indicates low drag. Its wide speed range allows her to slow down and hang in light thermals or penetrate a strong headwind when needed. Handling characteristics are good and any intermediate pilot will be able to easily control this glider.

Wrap-up

Every fine model has a place in the market. If your priorities are good looks and easy to assemble, the Osiris Mk2 is top rank. The glossy, full-painted finish makes her a hair heavier than the lightest competition models, but she is a very good flyer nevertheless. The clean design and accurate hollow-molded wing of the Osiris makes it an efficient soaring machine. Routinely catching thermals will not be a problem for the average sport flyer and the Osiris Mk2 delivers competition winning potential. SF

Weight Chart	Grams
Wing	147.5
Fuselage	50.0
Horizontal stabilizer	7.8
Vertical Fin/Rudder	8.0
2 Airtronics 94091 servos	19.2
2 Dymond D47 servos	9.4
1 Airtronics 92824 receiver (no case)	7.9
1 Battery pack, 400 ma NiMH	34.3
Wire Harness for ailerons	2.8
Miscellaneous (Control linkages, glue, etc.)	9.4
Noseweight	0
Total ready to fly	296.3

Osiris Mk2 Specifications

Model Name	Osiris Mk2
Model Type	Discus Launch Glider
Control Functions	Rudder, Elevator, Flaperons
Pilot Skill Required	Intermediate to Advanced
Projected Wing Span	58.6 in.
Wing root cord	7.25 in.
Wing Area	336 sq in.
Wing Airfoil	ag455ct-02r to ag47ct-02r
Fuselage Length	44.25 in.
Test Model Flying Weight	10.47 o
Test Model Wing Loading	4.49 oz / sq ft
Distributor	Icare RC 381 Joseph-Huet Boucherville, PQ J4B-2C5 Canada Phone: 405-449-9094 Web Site: icare-rc.com
Intro Price	US$499

PUTTING IT TOGETHER

We started by installing the tails, which are made of balsa and are sanded and painted at the factory. The horizontal tail is a "full-flying" type, so the mounting task is simply to glue the carbon pivot rod squarely into the fuselage. The vertical tail is slightly tougher because you must slot the rear of the fuselage to accept it. Once the vertical was tacked in place, square to the wing and fuselage with cyanoacrylate (CA), little fiberglass reinforcement patches were applied to both sides.

The fuselage has a very roomy area for radio installation yet retains sleek lines. We chose to glue in the servos in with RC56 canopy glue, which sticks well to plastic and is somewhat pliable so it won't pop loose like epoxy does at times.

The directions call for pull-pull control to the elevator with a unique method of routing the cables through two 90-degree bent tubes. I tried the stock method, but was not able to get the elevator to move in fine increments or center properly, so I returned to my favorite pull-spring method, which I've used in many other DLGs (see picture of connection at elevator).

I decided to use the pull-spring to control the rudder as well. Unlike the elevator, the spring force here is delivered from a tiny torsion spring hidden in the rudder hinge line. The spring provides left rudder when the servo relaxes the single pull cable. For right rudder, the servo pulls and overpowers the spring. The torsion spring is made of .020-in music wire in the shape of a staple with a 40-mm back and 15-mm legs. After one leg is inserted into the movable rudder near the control horn, the torsion spring is twisted 180 degrees to load it with force and then the other leg is inserted into the fixed vertical fin. No glue is required; the wire legs just poke in the balsa-like pins. I was very happy that the Osiris rudder was not cut free from the vertical fin because for the pull/spring method of control to work well, the rudder hinge line needs to be such that the movable section is one-third or less of the total area. I therefore moved the hinge line back a bit from the plan.

All that is required to complete the wing is a relatively straightforward installation of the aileron servos, aileron linkage, and aileron hinge gap seal. The gap seal is just a length of 1/2-inch wide scotch tape adhered to the ailerons' leading edges and tucked into the gap under the main wing skin. Off-the-shelf servo wire extensions to the aileron servos would have worked fine, but we took the time to hard mount a micro connector salvaged from an old VCR. With the connector hard mounted, you avoid the potential problem of a broken wire from repeated assembly and, more importantly, it makes setup at the field much easier.

It takes at least a mid-range computer transmitter to drive this type of DLG system because of the camber control and mixing requirements. We used the Airtronics RDS8000 with this model and found it to have all the capabilities we needed for an advanced flaperon DLG. For RDS8000 DLG programming details visit https://sites.google.com/site/specedout/Home

The finish on this sailplane is gorgeous and the color really stands out when thermaling in a gaggle of DLGs.

Osiris Mk2 Our Settings

Elevator Up Travel	6 mm
Elevator Down Travel	8 mm
Rudder Travel Independent	12 mm each direction
Rudder Coupled to Ailerons	8 mm each direction
Aileron Up Travel	14 mm
Aileron Down Travel	9 mm
Camber Launch & Speed	Neutral
Camber Cruise	2 mm down
Camber Thermal	5 mm down
Landing Flaps	12 mm down
Flap to Elevator Compensation	2 mm down elevator with full flaps
Elevator Momentary Launch Preset	1 mm up
Center of Gravity	79 mm back from wing leading edge