RCU Review: Hangar 9 Sundowner

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Hangar 9 Sundowner 36 ARF
The Hangar 9 Sundowner 36 is a fast sport scale model that is perfect for high-speed aerobatics and club racing. Based on the Sundowner Formula 1, this speedy performer has a scaled-down aggressive racer body design that is at home equally as a sport flyer or as a serious racer. Designed to be powered by an electric (EP) or glow (GP) power system, this plane delivers racer styling at a lower cost to you.

The model is constructed of lightweight balsa and plywood with carbon fiber reinforcements for added strength and durability. The low parts count makes this ARF exceptionally easy to assemble, and with a two piece wing, easy to disassemble for transport. The one piece fiberglass cowl has hidden cowl screws, adding to its great looks. The internals are easily accessed through the removable canopy, which is held securely in place with tabs and magnets.

The Sundowner 36 can be powered for sport utilizing the E-flite Power 32 or Power 25 motors or the Evolution .40NX glow engine. The Sundowner 36 always makes it look like it's tearing through the sky. Because of its smooth flight characteristics and precise, sport handling, even intermediate pilots will feel comfortable behind the sticks. Unlike other racers that may be difficult to fly, the Sundowner 36's streamlined design makes this racer smooth, precise and ready-to-roll.

**Specifications:**
- Wing Span: 51.5 in (131cm)
- Wing Area: 400 sq in (25.8 sq dm)
- Overall Length: 44.0 in (114cm)
- Flying Weight: 4.0 - 4.5 lb (1.8 - 2.0kg)
- Motor Size: Power 25 Brushless Outrunner
- Engine Size: .32 - .36 glow
- Speed Control: 40 Amp 3S, 60 Amp 4S
- Recommended Battery: 3S 11.1V 3200 mAh Li-Po
- Recommended Radio: 4+ Channel Radio system

**Key Features:**
- Rock solid performance at high speeds with good low speed handling characteristics for landing
- Two power setups: 3S/4S battery for Power 32 or 25 Option/Evolution 40NX glow engine
- Carbon fiber reinforcements
- fiberglass Wheel pants and cowl
- Lightweight construction techniques
- Two-piece wing
- Shown with optional aluminum spinner sold seperately (plastic spinner included)
The Sundowner 36 came well protected in its box. Each part was sealed in plastic so they arrived clean and separated into appropriate groups. I didn't see a single wrinkle on any of the covered surfaces.

The cowl and wheel pants were beautifully painted. The carbon wing tube and painted gear mains were additionally wrapped in paper to prevent scratches. The control surfaces were attached to their appropriate mate but the CA hinges were not glued. A large decal sheet and 48-page manual are also provided. The manual is loaded with quality photos and step-by-step instructions for an easy assembly.

A closer look at the fuselage reveals the quality construction of the Sundowner 36 and the Easy-Access Hatch. The large hatch is held in place with G-10 tabs and carbon fiber pins for easy access and in-flight security.

The top red portion of the fuselage, including the hatch, appear to be made from a molded plastic. All the holes are pre-drilled for the wings and a fiberglass support tube is epoxied in place for the wing bar. The motor mount is lacquered for protection from glow fuel.

**EF1 Power System:**
My Sundowner 36 will be powered in accordance to the National Miniature Pylon Racing Association (NMPRA) Electric Formula One (EF1) Rules using an E-flite Power 25 motor (1250Kv), 60-Amp Pro Switch-Mode BEC Brushless ESC, 4-cell 30C 2500mAh LiPo pack, and APC 8x8 thin electric prop.

The NMPRA Electric Formula One (EF1) is a racing event for radio control airplanes powered by electric motors. The event is intended to be easy to get into, available everywhere, reasonably priced and using off-the-shelf components to create the maximum amount of fun. While there is a great diversity in equipment available for electric models, these rules are designed to eliminate a technological advantage available to a limited few, and allow all participants to compete on an even level.

I'll also be using the new AR7010 7-Channel DSMX Receiver (in DSM2 mode), JR Sport MN48 Mini Servos for rudder and elevator, JR DS388 Digital Micro MG Servos for ailerons, and the optional E-flite (EFLSP200) 2" Aluminum Spinner.

Assembly:

The first step of the installation is the horizontal stabilizer. After first inserting the elevator into the tail, the horizontal stab is glued in place while the elevator hangs in position. The wings are temporarily installed to insure the stab is aligned properly. The wings fit very well against the fuselage. The alignment pins are pre-installed so the wings simply press into place.

Although the manual has instructions on cutting away the covering, it is already done on the ARF model.

The vertical stab is glued in place next and the top tail wheel wire section is glued to the rudder. I had no alignment issues and the instructions in the manual were easy to follow. The rudder hinges were secured with thin CA and the tail wheel bracket screwed to the fuselage bottom.
In the Rudder and Elevator Linkage Installation (page 15), it shows the elevator servo on the same side of the fuselage (left side) as the linkage exit and control horn. Since the control rod tubes cross inside the fuselage, the elevator servo must be on the right side of the fuselage. My guess is that the original prototype did not have the tubes crossed when the manual was written. The JR Sport MN48 Mini Servos are used for rudder and elevator control.

The manual does a good job of displaying the servo arm length desired so you obtain the proper throw. All the hardware worked well and the control rods were pre-bent and cut to the proper length. I added my own fuel tube keepers on each clevis because the supplied keepers were dry and brittle.

The main landing gear simply bolted in place. The metal gear section does have a front and back so you need to place the angle forward as shown in a photo in the manual.

The wheel pants self align and the only issue I had was to remove a sticky substance from the axles with Goo-Gone.

The aileron servos were mounted to the covers per the manual instructions. A 6" extension lead is needed on the servo wire. There are no strings inside the wings so you need to feed the wire through manually. It was a fairly short run and I didn't have much trouble.

The pre-bent linkage rods and hardware are all supplied so it was a quick job to install them on both wing halves. The manual describes the servo arm length and which hole to use on the clevis for proper throw range.
The Sundowner 36 comes with three different templates, two for glow power and one for the electric options. The Power 25 motor uses the inner holes and the 30mm standoffs. Note that the standoff lengths are incorrect in the manual. The center hole in the template must also be drilled out on the firewall to allow the motor shaft collar to pass through.

The triangle stock is only needed for the glow engine options and can be glued in place after mounting the engine. For electric power, the motor box is already much stronger than needed so it is not required to glue the remaining triangle stock in place.

If you drill a few holes in the motor box for a cable wrap to feed through, it makes the wires neat so they don't interfere with the motor. If you are using the recommended E-flite motors and ESC, matching the motor wire color to the ESC results in the correct rotation direction. (counter-clockwise when viewed from the front of the model)

I needed to open the floor slot a bit with a razor knife to allow the EC3 connector to pass through. No soldering required!

**Cowl, Prop, and Spinner:**

The last steps of the assembly are to mount the cowl and spinner. I used the E-flite (EFLSP200) 2” Aluminum Spinner which comes with both 4mm and 5mm collet adapters.

The cowl fits like a custom glove and is secured using two 3mm socket head screws which are hidden. After installing the canopy, you can see the Sundowner 36 is designed for a very clean look!

On my initial assembly and test flight, I only had an APC 8x6 prop available so I ordered a few 8x8 props.

**CG Setting:**

The receiver and battery positions were placed per the manual suggestions. With the battery pack all the way forward, as shown, the CG was about 2-4/8” back from the leading edge. The CG range is 2-3/8” to 2-6/8” so a slightly forward CG is a good place to start. The pack can be moved aft after each flight test, if needed.
Control Throws:

Here are general guidelines for the control throws measured from Horizon's flight tests. You can experiment with higher rates to match your preferred style of flying. Note that the Travel Adjust, Sub-Trim, and Dual Rates are not listed and should be adjusted according to each individual model and preference. It is highly recommend to re-bind the radio system once all the control throws are set. This will keep the servos from moving to their endpoints until the transmitter and receiver connect.

- **Aileron:**
  - High Rate Up: 7/16-inches (11mm) 30% Expo
  - High Rate Down: 11/32-inches (9mm) 30% Expo
  - Low Rate Up: 9/32-inches (7mm) 15% Expo
  - Low Rate Down: 5/32-inches (4mm) 15% Expo

- **Elevator:**
  - High Rate Up/Down: 11/32-inches (9mm) 25% Expo
  - Low Rate Up/Down: 3/16-inches (5mm) 20% Expo

- **Rudder:**
  - High/Low/Up/Down: 5/8-inches (16mm) 15% Expo

Measure the aileron throw from the inboard edge of the aileron and the elevator throw from the inboard edge of the elevator. Measure the rudder throw from the bottom edge of the rudder at its widest point.

Ready-To-Fly:

My Sundowner 36 was Ready-To-Fly at 56oz (3.5lbs) including the 9.6oz 4-cell 2500mAh E-flite Lipo pack. I measured 650 watts at 47 amps for a powerful 186 watts per pound after installing the APC 8x8 e-prop.

Test Flying and Summary

When we tested the Sundowner 36, we expected it to be fast and it really had some speed! Our only issue was that it needed a bit more right thrust as it pulled left when you hit the throttle hard. When taking off from grass, it tended to nose over a few times on the very start. Once you got some forward movement, or a shorter grass area, it was fine.
In the videos, you can see that the Sundowner 36 is both fast and maneuverable. On the maiden flight, we first felt that it was wanted to pull left when accelerating hard. If you intend to fly it this way, a small washer may need to be added on both left spacers of the motor mount for a little more right thrust.

Sundowner 36 Maiden Flight Video

CLICK HERE (8meg)

The Sundowner 36 flies as good as it looks! We did some very large loops and strong vertical runs so it has plenty of power to go with its speed. We were only testing it for sport flying and had no cooling issues. If racing, or flying in hot environments, you will need to add some air flow entry and exit.

The test flights were done in some winds of 10-20mph and the Sundowner 36 handled it very well for being a smaller sized model. We were getting 6 minute flights with the stock 4s 2500mAh pack and had a good 15% left in the battery. The NMPRA EF1 setup is nice and light for the Sundowner 36.

The design is solid so there was no warping of the fuselage or wing. Since the plane has relatively low wing loading, it can be slowed down for aerobatic sport flying. I would recommend the pilot have strong intermediate flying skills with some higher speed experience. Advanced pilots will have no problem flying the Sundowner 36 and really enjoy the way it tracks. Everyone loves the way it looks!
Comments on RCU Review: Hangar 9 Sundowner

There are no comments

The comments, observations and conclusions made in this review are solely with respect to the particular item the editor reviewed and may not apply generally to similar products by the manufacturer. We cannot be responsible for any manufacturer defects in workmanship or other deficiencies in products like the one featured in the review.

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