by Greg Poppel

One serious aerobatic bird!

RAVEN RC

Raven 50cc ARF

RavenRC.com is the sole importer for the new 50cc Raven ARF. They have appropriately named it an EZ build ARF and they are correct. The Raven is one of many great models in their product line. They provide a strong fiberglass landing gear, carbon fiber wing tube and tail wheel assembly to keep the plane light! Raven RC has initiated the latest in quality and structural engineering with this plane. Their high performance hardware pack includes anodized long aluminum arms for all flying surfaces. They did an excellent job matching the color and pinstripe with the cowl, hatch and fuse. What a great project and an honor to review this plane!

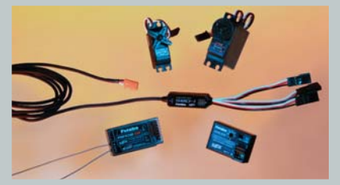
TIPS FOR SUCCESS

I decided to start this project by installing the engine. On these larger planes, I find it's always find it helpful to here as I work toward keeping the CG perfect without adding unnecessary weight. I selected the REV 55 gasoline engine, with a stock muffler for this model. I used the DA (Desert Aircraft) drill guide template provided in the kit to mark off the mounting holes in the firewall. Tiny adjustments were needed to obtain a perfect fit. The motor box comes complete with right and down trust already built in. The drill guide gave me an exact fit with engine, cowl and spinner the first time. I used a Tru-Turn black anodized 3.5" spinner for this review to help set off the color contrast on the cowling.

I mounted the ignition on the outside of the motor box and used the battery as a means to obtain my final balance. Next, I marked the locations for the motor and muffler exits on the cowl and using a Dremel tool, I ground out the marked areas check to ensure the fit was perfect. The Raven has provisions for a canister setup should you choose to use one. The cowl's mounting system uses six bolts that are hidden from view giving an amazing look to the finished model. I used the stock fuel tank with DUBRO Tygon fuel tubing which is made specifically for gasoline use. I set the throttle servo sideways in front of the take on the provided

The B&E Graphix Miracle Switch professionally controls power for both the radio and ignition.

FUTABA S.BUS



Leave it to Futaba to "reinvent the wheel", or at least the radio control servo interface system. Futaba's new S.Bus system will remove the cable clutter from your models while giving you the flexibility to place your battery and radio components wherever you like. This completely programmable system is sure to redefine today's radio systems and offers a great insight into the future of RC.

The Futaba S.Bus system allows you to use your flight system's full potential. The S.Bus uses digital serial data communication technology to transmit control signals between your receiver and servos. A single S.Bus cable can carry signals to as many channels as your transmitter can handle. You no longer have to worry about plugging in the wrong servo to the wrong channel, because the servo can be programmed to know what channel it is dedicated to in advance.

The SBC-1 is the S.Bus channel setting tool. The process of assigning your servos to the correct channels is, in my opinion, simpler than running multiple servo extensions throughout your model. Simply, plug a battery into the SBC-1 then rotate the selector to the channel you want to assign to the servo. Then plug the servo into the SBD-1 and depress the SW button on the unit until the LED flashes, that it! Now you can simply plug that servo into any S.Bus port and it automatically knows what channel it is supposed to respond to.

Do you already have servos installed in your model? Fear not! Futaba designed this system with you in mind as well. By using the SBD-1 S.Bus Decoder Cables, you can take advantage of this new technology without the need to buy special servos. Each SBD-1 has three programmable ends allowing you to assign a different channel to each. They are available in three different lengths (16, 43, and 63 inches) giving you the most installation flexibility possible.

If you have multiple servos on one surface, Futaba also has the CIU-2 USB Serial Interface and PC-Link software to give you total control over servo reversing, soft start/stop, neutral offset, speed, and dead band and travel adjustments.

Presently Futaba offers four S.Bus servos with many more on the way. To simplify the installation of your S.Bus system they have several different S.Bus Hubs as well as a Terminal Box to help configure the system to fit your needs. The Futaba S.Bus System's endless configuration options coupled with its programmable technology is sure to be the driving force into the future of the radio control hobby.

For more information on the Futaba S.Bus System as well as links to videos and software that you can download, please visit find.flyrc.com/021101.

SPECS

PLANE: Raven 50cc ARF

MANUFACTURER & DISTRIBUTOR: Raven RC

TYPE: Sport Aerobatic

WINGSPAN: 88 in.

WING AREA: 1465 sq. in.

WEIGHT: 16 lbs. 3 oz.

WING LOADING: 25.33 oz./sq. ft.

LENGTH: 81 in.

RADIO REQUIRED: 4 channel with 6 high-torque servos: Flown with the Futaba FASST 10CG 2.4 Transmitter, Futaba FASST S-Bus 8 channel receiver, Futaba S9072SB and S9071SB servos

ENGINE: REV 55 2-stroke gas engine

PROPELLER/SPINNER: Vox 23x8 prop, Tru-Turn black anodized 3.5" spinner

TOP RPM: 9,000

FUEL: Amsoil 50:1 regular gas

ONBOARD BATTERIES: ElectroDynamic 5-cell 1800 mAh NiMH (receiver) and a 5-cell 650 mAh NiMH (ignition) and Optical Engine kill, B&E Graphix Miracle switch

PRICE: $699

COMPONENTS NEEDED TO COMPLETE: 50-60cc gas engine, propeller, 4 channel radio with 6 high-torque servos

mounting plate. The choke was routed out of the front of the cowling.

The landing gear and tail wheel assembly was very easy. Everything lined up perfectly. Make sure to use a little Loctite on the screws to prevent them from vibrating loose. The wing assembly was next. The control surfaces come pre-hinged so I put together the black anodized arms with the adjustable stainless steel pushrods and installed them on each aileron. The supplied control arms attach to the factory round Futaba servo horns providing great 3D throws. The wings are held to the fuselage with a carbon fiber wing tube makes and bolts fasten them in place. The stabilizer assembly also came pre-hinged. Assembly was equally as simple by just adding the hardware and long servo arms which really does make this an "EZ build". The stabs are removable as well with two 3mm screws per side.

I used thick Anchor Adhesive CA to glue the rudder into the vertical fin. Raven RC provided very nice aluminum stand-off hardware for rudder's pull-pull connection, and a cambered aluminum arm for the rudder servo. The pull-pull cables were of equal high-quality with ball links and stainless crimps to hold them in place.

I am using the Futaba 10CG 2.4 FASST transmitter with the 8 channel FASST S- Bus receiver on this model. The Futaba S-Bus really simplifies the wiring in a model using a single 10 amp wire to connect to all the servos. I used the Futaba S9072SB and S9071SB digital servos. The S-Bus system offers a programmer so you can select what you want each servo to be, i.e. aileron, rudder, elevator. Once programmed, you can plug each servo into any S-Bus servo extension and the system automatically knows what the role of that servo is. I used a B&E Graphix Miracle Switch. This switch is as fine as they come. It has aluminum housing

The tail wheel, just like the rest of the control hardware that is included with the kit is very high quality with performance in mind.

AIRBORNE

This plane is the flagship model for Raven RC for a reason. The flight performance and aerobatic capabilities are virtually unlimited. This is a plane that can be setup to truly match your skill level. If you are just starting to fly aerobatics, you will love the stable flight characteristics of the Raven which make it a great plane even for the pros keep their fingers in check!

With the wings, stabs and engine all on the thrust line, the rolls are very axial and true. Inverted flat spins can almost climb. This is a well balanced model, flying out of the box with no trim changes. I dialed in 30% expo in the elevator, 30% on the ailerons and 40% on the rudder for high rates. I have zero expo on each surface for low rates.

The slow flight characteristics are a dream and it did not take long to calm my nerves, and the fear of the dreaded snap when flying slow, zero-lift maneuvers. This plane was built for harriers, hovering and torque-rolls. When flying a torque roll it flies like it is hanging from a string, very axial and stable requiring only minor corrections to keep it on task. I had a ball flying flat spins, both upright and inverted. They are very easy to enter and even easier to recover from. Knife edge spins were also very predictable. The slow rolls were graceful and beautiful and could be flown as long as you like. The REV 55 engine gave me all the performance I needed and more!

The Raven is an airplane that can easily take your flying skills to the next level. It can also be a great practice plane for high level competition where it may not always be practical to drag a 150cc model to the field. It is a very high quality, well designed model that looks as great as it flies.

REV 55 Engine

The REV 55 engine is a joint venture with a company that has been building RC engine for years, has a great reputation and could make the changes for Precision Aerobatics, and so the REV Engine line was born. A high level of machine work and engineering goes into each of their engines to provide greater power to weight and acceleration. At 16.3 lbs. the REV 55 provided unlimited vertical and the reliable performance you need for those down on the deck flights. For more information please visit find.flyrc.com/021102.

Capacity: 55cc
Configuration: 2 stroke single cylinder air cooled
Carburetor: Walbro vacuum pump
Ignition: RCEXL ignition system (CDI)
Power supply: 4.8V – 6V battery pack
Weight: 1,406g engine, 120g ignition, 92g muffler
Maximum rpm: 9,000 RPM
Idle rpm: Approx 1200-1300 RPM
Gasoline/Petrol: Pre-mixed 87-91 Octane unleaded mixed with high quality 2 stroke synthetic oil

PROPELLER SELECTION
Break-in: Vox 22x8 laminated wood
After break-in: Vox 22x8, 22x10, 23x8, 23x10,24x8 laminated wood or Carbon

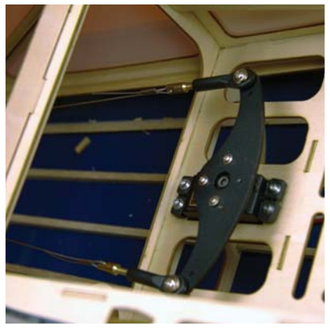
and two recessed toggle switches, one for the engine and one for the radio system. Two charging jacks are also incorporated on each end of the switch housing.

I used the ElectroDynamics Fiber Optic Kill Switch System for the ignition kill as well as their 5-cell 1800 mAh NiMH battery for the receiver and a 5-cell 650 mAh NiMH battery for the ignition. These batteries are a work-horse, more than capable of meeting the demand of these higher output servos.

CONCLUSION

If you like flying aerobatic and are looking for a 50cc size model then the Raven is a must have. It is one of the best bangs for your dollar in the 50cc market today. Over the years of doing reviews and flying at different fields the one thing I can say is, if you want to learn 3D aerobatics and have fun with it you need to have a solid and stable plane and motor combination that can do it. Here it is! This combination makes it very affordable; fly's like a 40% at a 1/3 the price! ✪

The engine stand-offs come with the REV 55 engine placed the engine in perfect position for the cowl to mount cleanly. Notice the right thrust that is built into the firewall.



The kit comes with a rudder servo extension arm. It attaches to a round Futaba servo horn and gives an incredible amount of rudder throw.

Links

Anchor Adhesives, Inc., www.anchoradhesives.com, (706) 878-0045

B & E Graphix, www.bandegraphix.com, (812) 844-1294

DU-BRO, www.dubro.com, (800) 848-9411

Electro-Dynamics, www.electrodynam.com, (734) 422-5420

Futaba, distributed exclusively by Great Planes Model Distributors, www.futaba-rc.com, (800) 682-8948

Raven RC, www.ravenrc.com, Fax (337)477-0995

Rev Engines, www.revengines.com, (770) 292-9122

Tru-Turn, www.tru-turn.com, (281) 479-9600

For more information, please see our source guide on page 121.