

AEROWORKS

BD-5B



Build and fly James Bond's aerial sportster



Story and photos by David Mielke

Have you ever wanted to be James Bond or maybe just to fly the same planes as James Bond? Well, the Aeroworks BD-5B may be just the ticket to that fantasy. The prototype first flew in 1971 with a 40hp, 2-cylinder engine and a pusher propeller. Thousands of kits were sold, but few were completed. As of 2002, only about 150 BD-5s were flying. I once saw a partially constructed BD-5 kit for sale at a garage sale for \$500. Along the way, someone got the idea to use a BD-5 powered with a small turbine jet engine in a Bond film. The climactic sequence, flown by John William "Corkey" Fornof in the BD-5J he constructed, is a knife edge pass through a hangar while the doors are closing.

The Aeroworks BD-5B features a built-up airframe with everything required except a power system and the radio gear. It has a beautiful pre-painted canopy and a sheeted fuselage pre-covered so perfectly that when I opened the box I thought it was fiberglass.

Some of the hardware highlights are a steerable nose gear, scale looking wheels and main landing gear, a belly pan that seamlessly covers the landing gear attachment points, and best of all, a rudder with its control system pre-installed. The high aspect ratio wing is thin with an airfoil resembling a typical glider section. This ensures good glides and great high-speed performance. The rear motor mount accommodates any S-400 size, 225 to 275-watt brushless motor. All this in an ARF that can be flown from asphalt, sand and short grass runways.

ASSEMBLY TIPS FOR SUCCESS

After a quick read through of the detailed manual, I was ready to start construction. The ailerons use a single aileron servo and pre-installed torque tubes. Finalize the aileron installation by gluing each aileron to the torque tubes using 5-minute epoxy and then securing the pre-cut, CA hinges. Put a small piece of wax paper between the aileron and the wing to keep the epoxy off the wing.

Gluing the wing halves together is a simple, but arguably the most important portion of the build. I used the wing joiner to work the epoxy well into the wing slots. I then coated each root rib face with a thin film of epoxy and joined the wings using masking tape to support the wings while the epoxy cured. This resulted in a very strong wing with no observable in-flight flex at all.

The rudder is pre-installed to the vertical fin, so I hinged the elevator to the horizontal stab with CA hinges and then installed this assembly into the fuselage. Make sure that the tail is square in all directions before applying CA.

The next step is installing the nose gear. First, build the landing gear strut in the gear panel and then screw the gear panel and attached strut

SPECS

PLANE: BD-5B

MANUFACTURER: AeroWorks

DISTRIBUTOR: AeroWorks

TYPE: Stand off scale

FOR: Intermediate to advanced pilots

WINGSPAN: 43.5 in.

WING AREA: 230 sq. in.

FLYING WEIGHT: 31 oz.

WING LOADING: 19.4 oz./sq. ft.

LENGTH: 31 in.

RADIO: 4 channel radio with (4) micro servos required; flown with Hitec Optic 6 transmitter, Hitec 555 receiver, (2) Hitec HS-55 servos (ailerons and elevator), Hitec HS-65 servo (rudder/steering)

POWER SYSTEM: Mega 16:15:4 brushless motor, APC 6x4E prop, Castle Creations Phoenix 25 ESC, Common Sense RC 3S 2100mAh battery

THROTTLE POWER: 24 amps, 264 watts; 8.52 W/oz., 136.3 W/lb.

TOP RPM: 22,000

DURATION: 10 minutes

MINIMAL FLYING AREA: Standard flying field

PRICE: \$139.99

COMPONENTS NEEDED TO COMPLETE: 3 micro servos,

brushless motor, 25-amp brushless electronic speed control, 1500-2500 mAh battery capable of greater than 30 amps, 4-channel receiver

SUMMARY

The Aeroworks BD-5B is a stand off scale replica of one of the

most popular home built planes in history. It has great lines, a thin and efficient wing, huge amounts of room for equipment installation and built up construction second to none. With a moderate (250 watts or so) amount of power, it will scream right along and perform very scale aerobat-

ics. Best of all it may be one of the easiest constructing ARFs I have ever built.

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into the fuse. I also hardened the holes in the fuselage with thin CA before screwing in the screws.

I used Hitec HS-55s for the ailerons and elevator and the slightly larger and stronger Hitec HS-65 for the combined rudder and nose wheel steering. The mounting hole for the HS-65 has to be enlarged slightly.

The motor mounts in the pod at the tail

and is shrouded by a plastic cover that is held down with screws that are placed into pre-drilled holes. The mount is installed with the correct thrust line, and the motor slips right in place. I did have



The forward fuselage offers plenty of room for installing the radio. I extended the ESC's battery leads to reach the battery mounted in the nose. A few wire ties help neaten up the overall installation.



AIRBORNE

The Aeroworks BD-5B is pure fun to fly. Takeoffs are easy due to the tricycle landing gear and powerful nose-wheel steering. There are two main limiting factors to successful takeoffs with this model. The first is the height of any grass and the second is how bumpy the surface is. I have flown the BD-5B from short grass with no problems, but longer grass might be tricky. A large bump can throw the nose up and possibly damage the lower fin on the ground.

Once airborne, you will find that it takes very little power to keep flying. Full power will quickly have any observers whistling in pure delight. Don't let the high speed fool you; the BD-5B is controllable right down to the stall point. However, because it uses a smaller prop, it does not have enough thrust to accelerate instantly, so don't count on thrust to get you out of trouble.

Despite being so short-coupled, the BD-5 only needed 15-percent exponential on the elevator to tame the pitch response with the designated CG. I was happy with my normal expo settings of 25 percent on the ailerons and 5 percent on the rudder.



The Aeroworks BD-5B performs any move the full-size one does. Level flight is straight and true with minimal down elevator required for inverted flight. Inside and outside loops are possible, but carry some extra speed for

the outside loops. Split S's and Cuban 8s are exceptional. This model carries momentum so well that maintaining the diagonal lines is easy. Rolls are linear but not too fast, making it easy to stop on point for hesitation rolls.

The vertical performance is also quite impressive. The BD-5 does quite well going upstairs. You need to keep the airspeed up while climbing to keep air flowing over the control surfaces. Get too slow and you will lose control authority, possibly resulting in a spin.

While we are on the subject of spins, the BD-5B does so and quite nicely. During one vertical climb, I slowed it down too much and it pitched over into a spin. Some club mates gasped (OK, so did I), but recovery was no problem. I let it gather some speed, gave it a little opposite rudder and was soon back in total control. This is a lesson to all: be sure you know how a new model spins before trying vertical flight.

Landings are straightforward, but it will glide right by if you let it. As you get close to the ground, start your flare, but don't pull too hard or the model will touch down tail first. When the main gear touches, let it roll for a second, ease off the stick until the nose touches down and let it roll out.

There are a few oddities inherent with the design, but as long as you keep them in mind, you will be fine. Remember that the BD-5B can tip over backwards, so go easy on the elevator on the ground. Also, note that the small prop doesn't have a lot of low-speed thrust, so don't count on pulling out of a bad position with a blast of throttle. Finally, since there is no prop blast, low airspeed will slow control responses.

to widen the access hole ever so slightly for the Mega 16/15/4 motor. I also extended the ESC's battery leads to reach the battery in the nose.

Bolt the wing to the bottom of the fuselage after you mount the main landing gear and then install the belly pan. I used white electrical tape to ease future maintenance. This looks great and has held up superbly.

Check the center of gravity after installing your equipment. I taped 0.5 ounces of lead weights together and used Velcro to secure them into the extreme nose to achieve the recommended CG position. Finally, I set the recommended control throws.

I spent a couple of evenings on this project and finished up by ironing out just four or five small wrinkles. Incredibly, they are the only ones I have ever seen on this model, even after multiple, hot, car trips and sitting out in the sun for hours at a time.

CONCLUSION

The Aeroworks BD-5D ARF is a great stand off scale replica of a very interesting full-size home built plane. It flies wonderfully and looks good in the air. Oh, and if you are practicing to be James Bond, this is just the ticket. Bravo to Aeroworks. 🍷

Links

AeroWorks, www.aero-works.net, (303) 366-4205

APC Propellers, distributed by Landing Products, www.apcprop.com, (530) 661-0399

Castle Creations, www.castlecreations.com, (785) 883-4519

Hitec RCD USA, Inc., www.hitecrd.com, (858) 748-6948

Mega Motor USA, www.megamotorsusa.com, (425) 451-1269

Common Sense RC, www.commonssenserc.com, (866) 405-8811

ZAP is manufactured by Pacer Technology, www.zapglue.com

For more information, please see our source guide on pg. ____.