

Product Review

Bad Boy

by
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INTRODUCTION

The Precision Aerobatics Bad Boy V-2 represents a new generation in profile fun-fly airplanes. The Bad Boy V-2 is an “Almost Ready to Fly” kit that only requires final assembly and installation of the radio gear and power plant. As the name states, the V-2 is the second in a series of Bad Boys. I had the pleasure of flying the original Bad Boy throughout the summer of 2004 and it quickly became my all time favourite profile plane. “What could they possibly do to make this plane any better than the V-1?” was the question that kept running through my head. Finally, after 6 months of anticipation, my question was answered. Simply put, the Bad Boy V-2 is a refined version of the original.

KEY FEATURES

The Bad Boy V-2 is larger than most 40 size profile planes and to make transport easier, the wings are removable. They are joined with a Carbon Fibre wing tube and sleeves in each wing half. Control surfaces are extremely large designed to perform most extreme 3D manoeuvres. The huge wing area reduces wing loading and allows excellent harriers.

All parts cut accurately by laser and CNC machines. Even the HD hinges been pre-cut by CNC. Landing gear is machined aluminium and not the standard weak struts supplied with other models in this category. There is obviously a lot of thought put into this design. The hinges slots are pre-cut for us; the fuselage construction accommo-



Pictured left are the accessories that are included, while right are the airframe components out of the box.



dates all extensions! These features make the assembly very neat and fast.

Unlike other models, here the receiver battery pack is mounted in the fuselage and not in one wing. This feature not only prevent heavy wing, it also makes life much easier when it comes to balancing the CG and in the field before take off.

Carbon Fibre is used extensively in this model. Other than the wing tubes and sleeves mentioned before, the leading edge of the wing is also made of Carbon Fibre. Precision Aerobatics even supplies Carbon fibre CNC machined control horns and Carbon fibre tail assembly mounting plate as standard equipment with Carbon Fibre servo arms as an option. The supplied pushrods are also made of carbon fibre with HD couplers and metal clevises. These pushrods are heavy duty an excellent quality ones same type Precision Aerobatics supply with their giant scales. I have never seen hardware of this quality included in an ARF at this price range. The kit is available in both blue and red colour schemes, both very attractive. Instruction manual is very detailed and demonstrates each step with

plenty of photos. I found it very clear and easy to follow.

IN THE BOX

When I opened the box, all I could see was a huge slab of a fuselage sitting on top of another box that housed the wings. To the right, I found the rudder and a bag full of hardware. The contents were all neatly packaged. The packaging is very smart in that it gives the wings the added protection needed to insure they get to their destination damage free.

THE BUILD

After reading through the instructions, I ran the covering iron over all of the seams. Also, I made sure to seal down all of the black trim just in case it wasn't fully adhered at the factory. I do this with all ARFs as a safety measure to prevent the covering from ever lifting. A word of caution: The clear covering is of the low heat variety and is easy to melt if heat is left on it too long or you get too close with a heat gun.

Now it is time to prepare the fuselage for servos and wing tube. I like to use a hot





The simple engine installation.

soldering iron when trimming covering but a hobby knife works well also. There are two servo cutouts at the rear of the fuselage and one at the front. In the middle of the fuselage are three holes that need to be exposed as well. All of the servo wires run through channels in the fuselage and there are strings in place to help guide them. Now, I installed the servos Hitec HS635HB servos for the tail, Hitec HS55 servo for throttle.

As per the instructions, I installed the landing gear. The fitting of the wings and tail feathers is much easier when the fuse is supported by the landing gear. Next, I trimmed the covering off the servo openings in the wings and installed the aileron servo. Here I used Hitec HS635HB servos.

In order to help line up the tail feathers, I installed the wings. Everything fit perfectly. I then checked to see if the fuselage sat perpendicular to the work bench (to make sure the landing gear was not causing it to sit lopsided). I test fitted the horizontal and vertical stabs to determine where I had to remove the covering for the glue joint. Then I used the soldering iron and a straight edge to remove the covering and mixed up the epoxy to glue in the horizontal stab. I made a jig with two coffee cups to support the stab and glued it all together. The vertical stab slid in tight and needed no adjustment. This plane is going together really fast. At this point, I was only about an hour into the build.

Next, I hinged the control surfaces per the instructions. The hinge slots were already cut, just use a hobby knife to cut the covering. To install the horns (very nice CF texture by the way), I used a hobby knife and made a slot in the correct location and epoxied them into place.

PUSH RODS

The push rods are Carbon Fibre as well. This is something you will NOT see in any other profile ARF on the market at any price!!!! For each push rod, there is a length of carbon fibre rod and two ends. Assembling the push rods is a simple task. I took a piece of medium to fine grit sand paper and sanded the ends of the CF rod until it fit into the end snugly. I then filled the end with thick CA glue and tapped the CF rod into the end and repeated the procedure at the other end. These push rods do not flex at all and employ metal clevises at each end. This is the kind of hardware you would expect to see as optional equipment on a plane twice this size!!! They come with the kit at no charge!!!!

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*** Best prices**
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*** Huge range of HD quality hardware**

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KATANA MINI
Wild 3D Electric ARF

TOP quality

Wingspan: 1020mm
 Length: 990mm
 Weight: 370g
 Wing area: 375.1 sq. ft.

CF landing gear
 CF control horns
 CF pushrods
 Fiberglass cowling and wheel pants

Available at blue, purple, red and yellow
 Two-piece removable wings with CF wing tube

\$178

BAD BOY^{v2}
Wild 3D profile funfly

Wingspan: 1340mm
 Length: 1187mm
 Weight: approx 4 Lb
 Wing Area: 5198 sq cm
 Engine: 32-50 2C, or 56-72 4C or EP Brushless
 Radio required: 1 CH
 Servos required: 4 servos 1 micro servo for throttle.

ARF kit include: **Two piece removable wings!**
 Carbon fibre control horns and HD pushrods,
 CF wing tube and wing socket, complete hardware pack

\$229

Butterfly
 Ultimate Indoor!

Built and flown in less than 90 minutes!
 With the NEW power system

Package **\$125**
 with a geared motor, battery pack

Electric Devil
 3D funfly

Wingspan: 762mm
 Weight: 350g
 Motor: Speed 400
 Flight pack: 9.6V 700mah included!

\$149

Fully assembled EP Heli

2X pre-installed motors, ESC
 Digital mixer, Gyro
 2X sub micro servos (pre-installed)
 9.6V battery pack (high discharge rate)
 Heavy-duty flexible massive skids
 Incredible crash resistance
 Replacement parts are available

Basic package **\$274**
 Complete package with JR Quattro **\$399**

FREE SHIPPING

P47 - ARF
 Limited special while stock lasts!

Retractable
 Two sizes available!

Wingspan: 1700mm
 Wingspan: 1450mm

\$349
 \$374

50 size Challenge 50

3D Heli out of the box

Metal machined parts
 Fiberglass canopy

\$520

Piper Cub J3 - ARF
 Electric park flyer

Wingspan: 1372mm
 Wingspan: 1195mm

FREE 600 Speed motor
 FREE flight pack
 FREE SHIPPING !!!

FREE 400S motor
 FREE flight pack
 FREE SHIPPING !!!

\$235
\$169

Extra 330L 20% ARF
 Top quality

Wingspan: 63"
 Length: 58"
 Weight: 6.16 lb. +
 Engine: 2S 47-9
 4S 8-1.2

\$440

FREE SHIPPING AUSTRALIA WIDE

Edge 540 ARF

Wingspan: 75"
 Weight: 4800g
 Engine: 1.08-1.50

Two piece removable wings
 FREE Carbon fiber wing tube!

\$565

TIGER MOTH ARF
 1/4 scale

Accurate detailed replica
 Wingspan: 88" Weight: approx 5900g
 Length: 70" Engine: 4S 1.2-1.8 20-40CC

Extra 330L ARF 35%
 Fully 3D T.O.C.

Wingspan: 107"
 Length: 98"
 Weight: Approx 25-27 lb
 Wing Area: 2150 sq in
 Engine: 80-120CC

Removable wings and stab
 Ultracote covering
 Excellent Value!
 Top quality

Special COMBOs
 Fully 3D

Extra 330L 42%
 Wing span: 123"
 Length: 111" Weight: 38
 Engine: 120-16000
 Ultracote

FREE Carbon fiber wing & stab tubes
 *30% Edge 540T ARF

T.O.C.

PA ACCESSORIES JR

Fokker D-VII ARF 1/4 scale

Wingspan: 88"
 Length: 67"
 Weight: Approx 10Kg
 Engine: 30-50cc

Removable wings and stab!
 Quality hardware included with Kevlar tail wheel assm.

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Iron scale wheel included - Accurate detailed replica

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SERVO ARMS

Precision Aerobatics makes a set of Carbon Fibre servo arms available with the Bad Boy V-2. They are not included in the kit, but I wouldn't skip these ones. The set of 4 include all hardware require (16 bolts, nuts and washers) and an illustrated instruction sheet. They simply mount to a servo wheel that matches the servo output shaft with four micro nuts and bolts. My servo wheels were noticeably larger diameter than the arms, so I just ground the diameter smaller, mounted the arms and cleaned up the edges with the sander. They provide incredible throw on the control surfaces.

I installed the RX inside the left wing panel using Velcro stuck to the wing sheeting and hot glued to the RX padding. This allows the RX to be removed easily when the wings come off. The battery and tail servos always stay plugged into the RX. When I assemble the plane, I just plug in the two aileron servos and throttle servo. Then, you stuff the loose wires into the wing and press the RX down onto the Velcro. The whole process takes about 2-3 minutes to setup at the field.

The last thing I installed was the engine so I could balance the plane. I set the CG to balance on the servo output shafts for aft battery position and just in front of the shafts for forward battery position. I had initially installed a Webra .50 on the nose. This was great except the motor was destroyed after a flying session where it was run lean and heated beyond acceptable limits. The piston/cylinder was damaged beyond repair and the Webra would not run properly. I had a YS .63 sitting in the drawer that I thought would be perfect for the BB V-2 due to it's size and lightweight, but I really wanted to test one of the new PA Super Props (12X4) with the plane. Props are made of mixed composite materials and look very promising. I bolted a piped tower .46 to the engine stand and ran it. No luck either. I must have ran it lean too (do you think I am hard on an engine???) As you might guess, the YS found it's way into the Bad Boy.

FLIGHT REPORT

Unfortunately, I have had many problems getting this plane up in good weather. Every time I have flown the Bad Boy V-2, the wind has been blowing more than 25MPH. This has made it especially hard to shoot stills. I have not been able to get a good hover shot due to the wind and an outdated camera that takes three seconds to record a picture.

This is why some of the photos in the review are of the Bad Boy V-2 prototype. You can also see that PA has upgraded the blue covering to an awesome metallic



In the air and approaching the hover.



And we are there!



If one is good, two is even better

blue as the transparent blue was not visible enough. I can tell you this though, what an incredible plane this is! The Bad Boy V-2 is easier to fly than a trainer. It lands slower, flies slower and has better manners than ANY trainer I have ever flown in my life. The centre of gravity is set to fly identical upright and inverted. The plane almost hovers itself and if you modulate the throttle correctly, you can torque roll it with almost no rudder or elevator input. I pulled it up into a hover and the wind blew it away about 350' before I lost the hover.

The wind is perfect for knife edge flight.. I pointed the BB V-2 in to the wind, turned it on it side and did a knife edge with no forward airspeed. This was on low rates! I prefer to fly with max throws and almost no EXPO, so when I flipped the

switches, I got a pleasant surprise. Roll rate is 2 rolls per second at low throttle setting. And maneuvers like the waterfall happened on their own. Blenders and Knife Edge spins are a no-brainer for my mate Bradley as he makes me look like a novice..

For the next series of flights, I moved the battery pack to the rear to get an AFT CG and every maneuver was awesome!!!! The Bad Boy does not display any negative characteristics when approaching stall and transitioning into hi-alpha flight. With the price, ease of building and great flight characteristics, you cannot go wrong with the Bad Boy V-2. If you install a .4-.462C, or .56-.824C, you'll be in great shape. Check the flight video on Precision Aerobatics web page. Get a Bad Boy V-2 and be A Bad Boy. That's all I can say.