

HOBBY
LOBBY

Reflex 3D

Designed by renowned French F3A and Freestyle pilot Benoit Paysant-Le Roux, the Reflex is possibly the best flying small 3D model I've flown. It's clear from the intricate laser-cutting and innovative design aspects that this is a very well-engineered model. There is an obvious focus to create the lightest possible airframe while maintaining structural strength to withstand the light ground contact inevitable with 3D park flying.

ASSEMBLY

The Reflex arrived in a surprisingly small box in perfect condition. The model is built from laser-cut balsa and plywood and nicely covered in a transparent two-tone color scheme. Along with the basic airframe, the kit includes pre-slotted flight controls, landing gear with wheels, a motor mount, metal control rods, a good instruction manual, and a full sheet of decals. I was struck by how light each of the individual

airframe components seemed. Now this is the way 3D ARF models should be built!

A quick look at the instruction manual revealed a nice set of diagrams and illustrated assembly techniques that should allow all but the most inexperienced builders easy success. To be honest, assembly is so simple that experienced modelers should be able to complete the Reflex with no instruction manual at all. Basic assembly includes gluing the wing to the model's profile fuselage, hinging the ailerons with the included CA hinges, gluing the horizontal and vertical stabilizers to the fuselage, and finally hinging the tail surfaces. Be careful to install the elevator into the slot first, followed by the horizontal stab. Also, be sure to remove the covering on those areas prior to gluing. I find that a hot soldering iron will cleanly "cut" the covering without damaging the underlying wood structure. I'd also rec-

by Scott Stoops
12 ounces of 3D fun
for the schoolyard

SPECS

PLANE: Reflex 3D

MANUFACTURER:

DISTRIBUTOR: Hobby Lobby

TYPE: 3D park flyer

FOR: Intermediate to advanced pilots

WINGSPAN: 36 in.

WING AREA: 302 sq. in.

FLYING WEIGHT: 12.3 oz.

WING LOADING: 5.88 oz./sq. ft.

LENGTH: 33.5 in.

RADIO: 4 channels required; flown with a Hitec Eclipse transmitter, Hitec Electron 6 receiver, (4) Hitec HS-55 servos

POWER SYSTEM: AXI 2208/34 brushless motor, Jeti Advance 8 brushless ESC, PolyQuest 3S 800mAh Li-Poly battery

FULL THROTTLE POWER: 13.4 amps, 145 watts, 11.78 W/oz., 188 W/lb.

TOP RPM: 6,990

DURATION: 10+ minutes of aggressive 3D aerobatics

MINIMAL FLYING AREA: Park or ball field

PRICE: \$99.90

COMPONENTS NEEDED TO COMPLETE: 100-150 watt power system, radio with four 6-9 gram servos

SUMMARY

The Reflex 3D park flyer, distributed by Hobby Lobby, is an ARF profile electric 3D airplane that delivers outstanding performance in a cost-effective portable package. The airframe components come preassembled in two distinct covering schemes, and with so much of the work already done for you, assembly takes no more than a couple of hours. While lightly built for maximum performance, the fully 3D-capable Reflex is strong in all the right places. If you are ready to make the jump to a balsa 3D model, I think the Reflex is the perfect choice.



HOBBY LOBBY REFLEX 3D

I feel this kit is well thought out. Finally, I used a Hitec Electron 6 receiver and simply Velcro-ed it into the stock receiver pocket.

With the basic airframe and radio assembly complete, it was time to install the power system—one area I've found that can be weak on profile electric models. Fortunately, the Reflex uses a very strong "X" style forward fuselage that ties into the firewall radial mount and the leading edge of the wing. After literally dozens of flights (and some not-so-ideal "arrivals"), the Reflex's motor mount has proven to be more than strong enough. It would be possible to modify the motor mount to accept a geared power system, but I've found the recommended AXI 2208/34 to be a perfect match for the model. I wouldn't change a thing. The AXI is installed using the optional radial firewall mount kit. Rounding out the power system, I used double-sided tape to attach the Jeti ESC to the forward fuselage, and Velcro to attach the Poly-Quest Li-Poly battery in the battery tray area.

TIPS FOR SUCCESS

With all of the components installed, I was unable to achieve the recommended CG of 100mm aft of the leading edge. To reach that CG, I would have had to Velcro the battery to the side of the fuselage forward of the wing (rather than in the stock battery pocket). Instead, I threw caution to the wind and



The lightweight laminated motor mount ties into the leading edge of the wing and fuselage sides. The AXI 2208 provides ballistic vertical performance with great acceleration and punch out from hover.



The fuselage has pockets for the servos and battery, a great help for a clean radio installation. A few zip ties hold the wires in check, and keep them out of the control linkages.

AIRBORNE

The most fun launch I have found for the Reflex is a vertical release into a hover or harrier. Sure, it can takeoff from short grass and smooth surfaces, but launching into a hover is simple and predictable (and it looks really cool!) If you do choose to takeoff from the ground, the Reflex is very controllable and stable.

Once airborne and on low rates, the Reflex is very predictable and easy to fly. I noticed no tendency to stall or snap out of any maneuvers. With high throws, the roll, pitch, and yaw rates are incredible. The first time you fly a wall, don't be surprised if the model rotates dramatically past vertical. To help smooth your flying out, I'd definitely recommend using both dual rates and lots of exponential as a starting point during the setup and trim flights.

The Reflex's precision abilities were one area that found me somewhat surprised. With a touch of aileron differential, the Reflex rolls axially. I also found the fuselage and tail are stiff enough that it tracks nicely. The wings double tapered leading and trailing edges also allow the model to snap better than most thick winged profile models. Overall, The Reflex could definitely be used as a basic aerobatic trainer (as well as a 3D monster).

Clearly, the Reflex was designed primarily for 3D flight—and it shows. The Reflex has no wing rock during either upright or inverted harriers. During torque rolls, only the smallest rudder and elevator inputs are required to hold her vertical. I noticed a slight pitch down while using the right aileron to hold a steady hover, but it was easily controllable. I also have plenty of aileron authority to fly anti-torque rolls. What a blast!

To be honest, the most fun 3D maneuver to fly with the Reflex is the waterfall. With the CG 107mm behind the leading edge, the waterfalls are very close to being within the length of the model. Lately, I've been working on hovers, then a waterfall back into a hover. The pitch response really is amazing. Another maneuver that benefits from the excellent pitch authority is the knife edge spin.

During knife-edge flight, I did notice a touch of coupling. It was easily mixed out with a 3 percent rudder elevator mix (pitch to the belly) and a 5 percent rudder aileron mix (rolling with rudder). Hobby Lobby's recommended AXI/PolyQuest power system provides plenty of thrust for vertical K.E. maneuvering including K.E. loops. In fact, it provides more power than I could ever ask for. At nearly 190 watts per pound, it should put a smile on the face of even the most power hungry modeler.



flew the model with the CG at 107mm and I'm glad I did. The performance is absolutely incredible. I would consider 107mm to be a very safe and flyable CG.

To fully reap the rewards of flying 3D with the Reflex, I fly with a lot of exponential. With the CG set at 107mm, the model is neutral in pitch, but it is very, very responsive. In fact, it is the most pitch responsive model I own. The great part is that it isn't twitchy or divergent—just responsive. With that in mind, I fly with 90 percent expo (Futaba/Hitec setting) on the elevator, and am very happy with its feel. I am also flying with -90 percent expo on the ailerons and -60 percent on the rudder.

CONCLUSION

The Hobby Lobby Reflex is a fantastic flying model, plain and simple. Whether your goal is to work at learning to fly a harrier, or clean up those point rolling harrier circles, the



The 2.8-ounce Poly-Quest 3S 800mAh pack fits perfectly in the battery slot and is a great match for the high draw needs of 3D flying. I use

Velcro on the pack, and a Velcro strap to secure the battery to the airframe.

Reflex is ready and asking for more. It just doesn't have any bad habits. You can't ask for more than that. I'd recommend the Reflex without hesitation. ☺

Links

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

Hobby Lobby International, Inc., www.hobby-lobby.com (615) 373-1444

For more information, please see our source guide on pg. 209.