

## PRECISION AEROBATICS

**Extra MX** *by Kevin Siemonsen**This aerobat flies bigger than it looks!*

**P**recision Aerobatics is known for setting high standards with its electric aerobatic models. Performance isn't taken for granted, and when you talk to Steve Evans, PA's North American operations manager, you really hear his passion for performance and quality. That PA continues to expand even in this economy is proof that they are doing something right! Their original designs and unique construction technique really set them apart. With its light wing loading, eye-

opening performance and bold graphics, the Extra MX is no exception.

**CONSTRUCTION**

The Extra MX airframe is constructed primarily of laser-cut balsa, plywood and carbon fiber. It comes in your choice of red, blue, green, or yellow combined with black in striking color schemes. I couldn't help but oodle over the intricate laser work and copious carbon-fiber

**SPECS****PLANE:** Extra MX**MANUFACTURER & DISTRIBUTOR:**  
Precision Aerobatics**TYPE:** 3D & precision aerobatic flyer**FOR:** Intermediate through advanced**WINGSPAN:** 58 in.**WING AREA:** 712 sq. in.**WEIGHT:** 3 lb. 13.5 oz.**WING LOADING:** 12.4 oz./sq. ft.**WING CUBE LOADING:** 5.59**LENGTH:** 51.8 in.**RADIO:** 4 channels required; flown w/JR 12X transmitter, Spektrum AR6200 receiver, 4 Hitec HS-5085 digital servos**POWER SYSTEM:** Thrust 50 motor, VOX 14x7 prop, 65A Quantum brushless speed control with switching BEC, 2 3S 2200mAh LiPo batteries run as 6S configuration**FULL THROTTLE POWER:** 46.5 amps, 965 watts; 15.7 W/oz., 251 W/lb. (w/Vox 14x7 prop)**TOP RPM:** 8,400**DURATION:** 7-10 min.**MINIMAL FLYING AREA:** RC club field**PRICE:** \$269.95**COMPONENTS NEEDED TO COMPLETE:**  
Shop hand tools, glue, receiver**SUMMARY**

Precision Aerobatics offers iPAs (integrated performance airframe-drive system) to eliminate the guesswork in equipping your model and guarantee performance. Fiber fusion construction is a proven way of increasing strength and reducing weight for optimum performance. Top-quality components, light, rigid airframes and attention to detail put this Extra in a league of its own.



PHOTOS BY WALTER SIDAS

## PRECISION AEROBATICS EXTRA MX

reinforcements. The airframe is very light and incredibly rigid. The airframe kit includes a two-piece wing, painted fiberglass wheel pants and carbon reinforced cowl, carbon-fiber wing tube, carbon-fiber landing gear, large battery-access cover secured with heavy-duty rare-earth magnets, installed canopy, carbon pushrods, carbon-reinforced motor mount, wheels, hardware package, control deflection pitch gauge, Precision Aerobatics DVD and detailed, photo-illustrated direction booklet.

Assembly went smoothly, and I completed



**The carbon fiber vortex generators smooth the airflow over the wing tip and noticeably reduce wing rock during high alpha maneuvers.**

it in three short evenings. PA has clearly taken great pains to make sure that assembly goes without error. The horizontal stabilizer is fully symmetrical and features a flat section that slides into a slot that's already cut in the fuselage. A razor blade is required to remove the covering and a small piece of balsa in the fuselage before you can slide in the stabilizer. I added a little 30-minute Z-Poxy, slid the stab into position and let the glue cure. The stabilizer is completely self-aligning and essentially goof-proof.

The carbon landing-gear legs screw securely into a carbon-fiber mounting plate. Before installing them, you must remove the covering to expose the plate. The wheels and wheel pants are attached with screws, and for added security and ease of alignment, the wheel pants feature a molded channel that pockets the gear leg. Attach the tailwheel to the bottom of the rudder. Cut a slice in the covering to expose the pre-cut slot in the bottom of the rudder. The tailwheel wire gets the epoxy treatment in the slot, and I added a



**Two scoops direct a lot of cooling airflow over the motor to keep it running at peak efficiency.**



## AIRBORNE

The weather was beautiful for my first flight. Taxiing the Extra MX showed the stout nature of the carbon gear with little wallowing and positive control. Powering up the Thrust 50 had the Extra MX ballistic in what seemed like inches, not feet. According to PA, the Thrust 50 makes 10 pounds of thrust, and the plane weighs just over 3.75 pounds, so you can do the math. I brought the MX up to altitude to do a few maneuvers and feel it out for the first few minutes. Even with 35-percent expo, the elevator was very sensitive. At first, I thought it was tail-heavy but after flying several maneuvers, I concluded that it was simply very effective. I added more expo to suit my thumbs, and the response was fine. I also noticed how lightly the plane flew. The MX has an exciting nimble feel that doesn't get nervous at slower speeds. The MX seemed happy in any attitude at any time! The big wing and unique aileron hinge system gave a very positive roll feel. I was able to increase aileron deflections and still manage the roll rate.

It didn't take me long to get down and dirty on that first outing. I flew many passes—some inverted, some knife-edge, harriers, etc. That MX holds a point well and is as stable as I have seen. Inverted flight requires just a hint of down-elevator to keep it level. Knife-edge is impressive with what seemed like slow-motion high-alpha passes. Snap-rolls and flat spins were sweet. There is little inertia, and rotation stops almost instantly when you release the controls. Flat spins are smooth and lazy, similar to those of a much larger airplane. Recovery is immediate with a hint of opposite rudder. High-alpha maneuvers are impressive. The light wing loading maintains stability as you slow down. This gave me the confidence to harrier and hover right on the deck with less pucker factor than usual. The Extra MX hovers with the best of them, and the entry transition is as easy as pulling back on the elevator. Instant exits need only throttle.

The Extra MX isn't just a 3D performer; it exhibits redeeming qualities in precision flight as well. With reduced rates, the MX points like a pattern ship and would be a great plane for practicing IMAC routines.

The last features worthy of mention are the vortex generators (VG). I temporarily installed mine with clear tape and was happy with the results; snap-rolls are more abrupt and high-alpha even better. There was very little difference otherwise, and my VGs ended up permanently installed with glue. Landings were straight forward without surprises. It's hard to mess up landing an airplane that maintains its manners so well.

small piece of clear tape to reseal the covering

The prehinged rudder and elevator have flex-style hinges that require a few drops of thin CA to make them permanent. Extra covering is supplied to seal the hinge line. The ailerons are also prehinged with a unique inset pin hinge and are gapless. Every control surface uses a carbon-fiber control horn that fits snugly into a pre-cut receptacle and is secured with epoxy. The optional carbon-fiber vortex generators can be installed in the wing at two locations: you have a choice of pre-cut slots in the wingtips or a few ribs inward. Cut the covering to expose the slots, and tape or CA them into place.

The motor-mount box comes assembled but has to be attached to the firewall. Carbon rods lock the mount into place. Additional carbon-laminated stiffeners are added to the mount box to maximize strength with a minimal weight penalty. The directions indicate that all the glue joints in the motor mount, the firewall and the stiffeners should be epoxied as well. With 1300 watts of power, CA alone is not enough!

The Thrust 50 motor is a beast. Its RotoKool fan gives it a unique look and a performance edge by running cooler. Gold-plated connectors plug into the Quantum 65A brushless speed controller. To further aid cooling, two generous scoops on either side of the motor box direct cooling air over the motor. The two Precision Aerobatics LiPo battery packs are wired in a 6S configuration.



### Integrated performance airframe-drive system—iPAs

The iPA's is the real deal—no compromises, modifications, or hassles! The performance right out of the box is the same as you see in the Precision Aerobatics web videos. The Extra MX was built around this power system. Included in the pie is a no-compromise Thrust 50 brushless motor with RotoKool cooling technology, 65A Quantum speed control with switching BEC, a VOX 15x7 wooden prop, 4 Hitec HS-5085 digital servos, 2 meters of servo wire and CNC machined carbon-fiber servo arms. I powered up my Extra MX for the first time in the basement. When I felt 10 pounds of thrust pulling on a featherlight 3-pound 13.5-ounce airframe, I knew it was love!

What really impressed me was that all this power was coming from their low power option! I had been sent their smaller VOX 14x7 prop instead of the 15x7, and measured just under 1000 watts of power. The 15x7 pulls nearly 1300 watts, and really amps up the already-thrilling performance!

Precision Aerobatics also offers a \$57 "Bling Package." This includes carbon fiber wheel pants, 1.8-inch carbon-fiber spinner, and carbon-fiber vortex generators along with a set of wing bags. I didn't get the full package, but did want the spinner to dress it up a bit and to see if the and VGs made any noticeable difference. If you want just the spinner, it is available separately for \$24.95.

The Extra MX has an oversized carbon-fiber battery-mounting tray that will accommodate many battery configurations and mounting locations to allow CG fine-tuning. The 1.8-inch carbon-fiber spinner is precut for the VOX propellers.

The Hitec HS-5085 digital servos are mounted close to their respective flight controls in servo cutouts. Before installing the servos, I cut the covering off the servo cutouts and enlarged them slightly with a Dremel Tool. The kit includes a generous length of wire to lengthen the servo wires by soldering instead of adding extensions. Soldering gives less voltage drop and is lighter for better performance. Carbon pushrods are attached to the servo arm via a ball link, and the CNC-machined aluminum end fits the control horn. Epoxy the pushrod ends after you've fine-tuned the pushrod lengths.

Finally, I added a Spektrum AR6200 6-channel receiver. It fits perfectly on the preinstalled receiver mount and is secured with Velcro.

### CONCLUSION

I am thoroughly impressed by the innovation, quality and performance of Precision Aerobatics' product line. Their dedicated iPAs power solutions offers exceptional performance that's sure to please. The wide speed envelope gives this thoroughbred tremendous versatility. I really like my Extra MX, and it is ready in my Chevy Tahoe right now. 🚗

#### Links

**Hitec USA**, [www.hitecrcd.com](http://www.hitecrcd.com), (858) 748-6948

**JR**, distributed exclusively by Horizon Hobby Distributors, [www.jrradios.com](http://www.jrradios.com), (877) 504-0233

**Precision Aerobatics**, [www.precisionaerobatics.com](http://www.precisionaerobatics.com), (770) 292-9122

**Spektrum**, distributed by Horizon Hobby, [www.spektrumrc.com](http://www.spektrumrc.com), (800) 338-4639

**Zap & Z-Poxy** are manufactured by Pacer Technology, [www.zapglue.com](http://www.zapglue.com)

**Thrust Motors**, [www.thrustmotors.com](http://www.thrustmotors.com), (770) 292-9122

**Vox Propellers**, Distributed exclusively by Precision Aerobatics, [www.VoxProps.com](http://www.VoxProps.com), (770) 292-9122

For more information, please see our source guide on page 145.