

Flight Test

**Precision
Aerobatics**

EXCLUSIVE!

Katana MX

**The performance and precision of a
large plane in a convenient size**

BY AARON HAM | PHOTOS BY HOPE McCALL



SPECIFICATIONS

Model: Katana MX

Distributor: Precision Aerobatics

Type: 3D

Wingspan: 57 in.

Wing area: 749 sq. in.

Ready-to-fly weight: 66 oz.

Wing loading: 12.69 oz./sq. in.

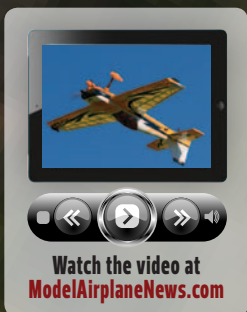
Length: 56.34 in.

Radio req'd: 4-channel w/4 servos

Price: \$299.95

HIGHLIGHTS

- + Simple, straightforward, and quick assembly
- + Awesome color scheme for great visibility
- + Superb slow flight characteristics
- + Extremely stable in all flight regimes



My first question is ... when is Precision Aerobatics going to get into the full-scale market? Their product designs are phenomenal, the construction of the models is astonishing, and the performance is jaw-dropping! I would be the first to volunteer (along with many others, I'm sure) to fly a full-scale version of any one of their awesome RC airplanes. Precision Aerobatics' new Katana MX once again has superior performance that far exceeds that of any full-scale airplane.

Unique features

This is Precision Aerobatics' second release in a new line of next generation airplanes. The model has a completely new re-engineered aerodynamic design that is derived from the Katana MD, which also has custom new airfoils.

Constructed from Precision's FiberFusion technology, the airplane has embedded carbon fiber within each of the fuselage stringers and uses carbon-fiber cross-bracing to increase strength without any kind of a weight penalty.

Also included in the kit are numerous carbon-fiber parts, including the gear, wing tube, wing leading edge, control arms, and pushrods. Also included are German ball links and CNC-machined clevises, a CNC-machined battery tray, and a generous hardware package. The fiberglass cowl and wheel pants are reinforced with carbon fiber. Optional upgrades include recommended carbon-fiber servo arms, carbon-fiber vortex generators, a carbon-fiber spinner with aluminum backplate, and a set of carbon-fiber wheel pants. If you follow the



TAKE THE TIME TO DIAL IN YOUR MIXES AND EXPOS, AND YOU'LL HAVE AN AEROBATIC PLANE THAT WILL AMAZE.

IN THE AIR

When it comes to developing a full-out 3D capable aerobatic airplane, the folks at Precision Aerobatics know their stuff.

Similar to the last Precision Aerobatics plane I reviewed, the Bandit, the Katana MX has amazing power and superior performance that far exceeds any full-scale airplane. One of the things that brings Precision Aerobatics airplanes above the pack is their relative ruggedness and impressive power-to-weight ratio. With its pilot-friendly wing loading, the Katana is capable of every aerobatic move in the book, and it is easily capable of both wild, high energy, 3D performance, as well as smooth and predictable precision flight. If you set it up with high and low rates (or even Flight Modes, if your radio has this capability), you can enjoy both ends of the flight spectrum with unlimited aerobatics on one end and almost trainer-like slow speed for landings. A great combination for any intermediate to advanced RC pilot. With the test setup, you can expect 6- to 8-minute flight times based on how aggressively you fly and use the throttle.

GENERAL FLIGHT PERFORMANCE

Stability: Like all Precision Aerobatic designs, the Katana MX is well balanced and very stable at all speeds. Again, depending on your control throw and rates, you can have a takeoff that's nice, slow, and graceful, or you can punch it and go vertical in less than 3 feet.

Tracking: The best description I can give for tracking is that it is amazing. Even at lower airspeeds, the Katana feels like it's flying on rails. On the ground, the rudder is very effective and the plane is undemanding to keep in a straight line. Any experienced pilot with intermediate to advanced piloting skills will feel completely comfortable at the sticks.

Aerobatics: As the company name implies, their designs are purpose-built aerobatic planes and there's really no limit to what they can do. Well, maybe the only limit is the pilot's skills. Power equals vertical

performance and this plane has no issues blasting off for exciting flights. On our getting-to-know-you first test flight, loops were performed perfectly at about half throttle. Exits were right on the spot where we entered the maneuver. Both inside or outside loops were effortless—but don't try full power loops. At the advanced control throws, you can snap out of the maneuver. Rolls that are slow or super fast, as well as point rolls, are almost too easy. They are very axial and you can do them with authority or stretch them from one end of the flying field to the other. Snapping maneuvers too are very honest and predictable. Hovering is downright easy and with a bit of a headwind, you can harrier it in a landing at extremely slow speeds. With high rates, rolls are extremely fast, yet

stop on a dime when you center the stick. Knife edge can be horizon-to-horizon and feels great at about 1/3 throttle. Inverted flight requires almost no down-elevator input, and like all the other aerobatic maneuvers, it feels solid and undemanding. Just take the time to dial in your mixes and expos, and you'll have an aerobatic plane that will amaze.

Glide and stall performance: The stall and snapping performance is very predictable. In normal flight, stalls are almost impossible to induce. But in a spin, simply relax and neutralize the controls, let the nose drop, and add some

power to recover. Nothing to it at all.

GEAR USED

Radio: JR 11X transmitter (jrradios.com), Spektrum AR6200 2.4 receiver (spektrumrc.com), and four Hitec HS-5085MG servos (hiteccrd.com)

Motor: PA Thrust 50 & PA Quantum Pro 70A speed control

Battery: Two PA 2200mAh 20-40C 3S LiPo packs in series

Prop: Vox 15x8 (voxprops.com)

PILOT DEBRIEFING

If you want performance, the Katana is a machine that will make you very happy. It has it all and can be set up to be the best sport flyer on the planet or you can kick the rates and expo way up and go out of this world and into the exciting whelm of unlimited 3D. Flown at one or two mistakes high, this is the perfect plane to try new moves with. Then when you get comfortable, you can bring it down on the deck and surprise everyone. But don't let anyone know how easy it is with the Katana.



The KMX offers ample room to accommodate your electronics. One of the two batteries is located as far forward as possible to achieve the perfect center of gravity.



Senior Technical Editor Gerry Yarrish and longtime contributor Craig Trachten look over the aircraft before its maiden flight.

manual you'll be rewarded with an excellent airplane.

The control pushrods may need to be cut with a rotary tool cutting wheel for a precise fit and perfect geometry. Precision Aerobatics also suggests hard mounting each of the servos to the airframe. It is recommended that you don't use the rubber

grommets and eyelets that are included with the servos, as they can cause excessive flex in the servo under high-load conditions. I haven't seen any issues with this technique, but be sure to harden each of the screw mounting holes with thin CA.

It is also very important to clean the inside of the metal clevises that will house

the carbon-fiber pushrods. I used small hobby cotton swabs soaked in denatured alcohol to thoroughly clean the inside. Once satisfied, be sure to cut the control rods to the exact needed length with a rotary cutting tool, groove the edges for a better grip, and finally epoxy each rod into its respective control arm and servo arm. Be sure the rod is seated all the way to the end of each receiving clevis. You'll also find the use of a miniature round file extremely useful for getting the servo arm and con-

Vortex Generators: Performance you can feel!

Though you might think that vortex generators (VG) are just another neat bit of "bling" to add to your airplane for increased eye appeal, the carbon-fiber CNC cut VG accessory packages from Precision Aerobatics are indeed worth the effort of installing them on your Katana, or any other PA aircraft. The Katana MX vortex generators (\$17.95) are easy to install in pre-cut slots in the wing leading edges and the wingtips. Once glued into place, the smaller VG tabs and the end plates help delay flow separation and aerodynamic stalling, helping improve wing efficiency. The VGs greatly improve flight characteristics at high angles-of-attack (AoA) and improve stability during 3D and knife-edge flight—especially at slow speeds. So, in addition to adding a cool, funky look to your plane, the VG package also makes your airplane a great performer both upright and upside down. By re-energizing the boundary layer, the wing just keeps on hanging in there. The benefit is that you can fly at four to five degrees more in AoA, and the wing continues to produce lift. With the increase in efficiency, your ailerons will remain effective and you can actually feel the difference.



The lower cowl has a large cooling exhaust opening and the gear is strong enough to handle the toughest landings and runway surfaces.



trol arm holes to be the perfect size.

As mentioned, I found the build to be very straightforward with very little modifications needed for a perfect assembly.

Conclusion

This little hotrod boasts all of the performance and precision of a large scale airplane in a package that's easy to assemble, fly, and transport. Although it's not for the absolute beginner, the KMX can be assembled and flown by just about anyone with a solid foundation of basic skills. It's a blast!

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