

Flight Test

PRECISION AEROBATICS XR-52

**YOU'LL LOVE THIS FUN,
FREESTYLE MACHINE!**

BY MIKE GANTT PHOTOS BY JOHN REID

THE THRUST TO WEIGHT RATIO IS EVERYTHING in the world of aerobatics and 3D. The best of both worlds is a delicate balance between too much and too little; a feather with a twin turbo V-8 engine will not do well in the air! After flying many model airplanes, it seems apparent to me that there are a few RC aircraft manufacturers that go the extra mile to find that delicate balance, and Precision Aerobatics is one of them. These guys take airframe design seriously, and they do it right! Tons of testing and prototype tweaks have lead to an amazing new airplane, the XR-52, aimed to impress hardcore "hucking" pilots with its fantastic flight characteristics. In addition to designing a great airframe, the folks at Precision Aerobatics have engineered and tested a power package specifically for it, so they offer a hassle-free motor, electronic speed control and battery package as well as a propeller and servos that are guaranteed to provide outstanding, efficient performance. This awesome new model airplane is available in three color schemes and my new "green machine" arrived gorgeous in every way, double-boxed for safe shipping. Let's take a closer look.

SPECIFICATIONS

NAME OF PLANE: XR-52
MANUFACTURER: Precision Aerobatics
TYPE: 3D Aerobatic ARF
LENGTH: 48.94 in.
WINGSPAN: 52 in.
WING AREA: 586.3 sq. in.
WEIGHT: 48.65 oz.
WING LOADING: 11.95 oz./sq. ft.
MOTOR REQUIRED: Thrust 45 or equivalent
RADIO REQ'D: 4+ channel
PRICE: \$240; iPAs Extreme kit, \$315

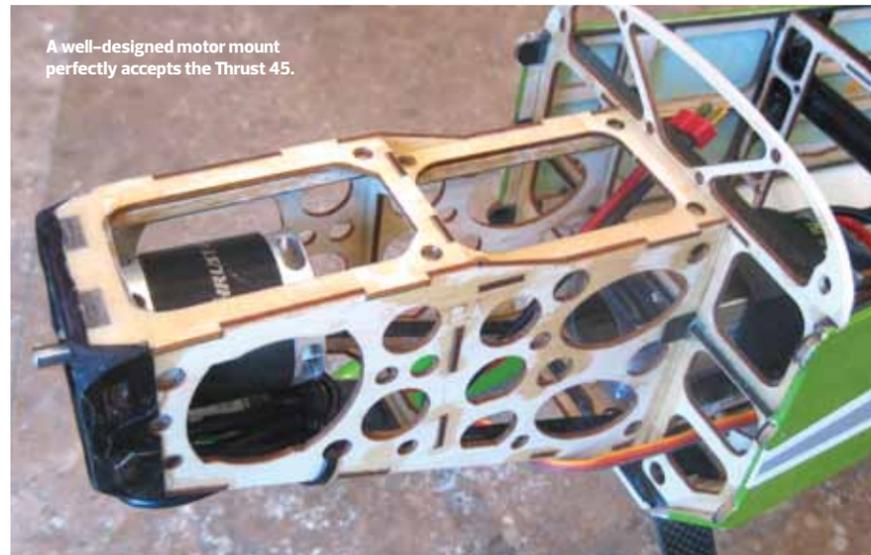
HIGHLIGHTS

- Well-engineered airframe
- Outstanding parts fit
- High-quality hardware
- Incredible flight abilities

GEAR USED

RADIO: Spektrum DX-18 G2, AR7000 (spektrumrc.com), four Nexatec NXT-80DSM
MOTOR: Thrust 45 brushless outrunner, Quantum 45 Pro
BATTERY: Precision Aerobatics V3 4s2200 30-60C
SPINNER: Precision Aerobatics 2.17-inch carbon fiber





A well-designed motor mount perfectly accepts the Thrust 45.

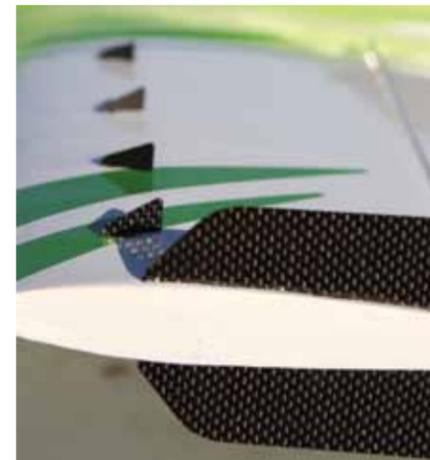
... NO END TO WHAT THE XR-52 CAN DO IN THE AIR. INSANELY VIOLENT TUMBLES, LOCKED-IN HARRIERS AND TORQUE ROLLS, SMOOTH ROLLING MANEUVERS, TIGHT WALLS AND WATERFALLS ARE JUST A FEW ...

UNIQUE FEATURES

Assembly of the XR-52 is quite easy due to a high level of prefabrication, low parts count and very well written instructions. You'll need common modeling supplies such as some CA glue and 30-minute

epoxy, and the only change I made was to use my own hex-head fasteners to hold the servos in place. Looking inside the fuselage of the XR-52 will lead you to appreciate the time it must have taken to not only design, but also to build this airframe. Carbon fiber has been employed to strengthen key areas of the airplane and consequently allows weight to be shed. Laser-cut wood with extensive lightening holes and carbon-fiber bracing throughout is the best way to lower wing loading while maintaining structural integrity, and Precision Aerobatics calls this type of

construction FiberFusion. Keeping carbon fiber in mind, it is also used for the landing gear, wing tube, control horns and control rods. The high-quality linkages that are included utilize ball links that are super smooth. High-quality servo extension



Vortex and side force generators help to direct the wind over the wing during slow and high-angle-of-attack flying.



The precision hardware package has ball links that make the connections between the servo arm and control surface very solid.



Inside the cowl there are two plastic air ducts to guide the air around the motor. This keeps it very cool during hovering.



The large fuselage hatch is attached with strong magnets; this makes it very easy to install and remove the battery.

5 HINGING TIPS

When it comes time to attach control surfaces to their counterparts, the CA hinge offers a simple and lightweight way to go. Here are a few tips to help make your hinging happenings happier.

1 PIPETTE/NEEDLE INJECTOR FOR CA BOTTLE. Using a fine-tip dispenser will better direct the glue into slots without making a mess on your model.

2 ALL THE RIGHT GLUE. BSI Instaflex has been my go-to glue of choice when adhering CA hinges. It is perfect for this job because it does not turn brittle, so your hinges will live long, happy lives.

3 T-PINS OR CRAFT PINS FOR CENTERING. Placing a pair of pins in the hinges centers will help to set your hinges equally between control surfaces. It also keeps hinges from slipping into your airframe.

4 DRILL HOLES. I like to drill a 1/16-inch hole in the hinge slot centers. This allows the glue to flow and completely saturate the hinge giving you a solid bond.

5 SATURATE BOTH SIDES OF HINGE. When you apply the CA, make sure to add a few drops to each side of the hinge to make sure the glue has reached through and into the airframe structure.



wire and a set of extended carbon-fiber servo arms are added to achieve proper throws and geometry of the linkage setup. A spinner, side force and vortex generators are available in carbon fiber and I ordered a set of those. If you wanted to totally "bling" this thing out, you can buy carbon-fiber wheel pants and a set of wing bags, too.

The Thrust 45 motor has been developed specifically for the XR-52 and features RotorKool technology. The "cool" thing about the motor is that it will dissipate heat: a "fan" machined into the motor housing spins as the motor turns and generates airflow! Also in the recommended power system is a programmable Quantam Pro 45 speed control, which is 2S-6S LiPo capable and has an onboard switching BEC. Four Nexatec NXT-80 coreless, digital servos offer high speed and torque. A set of (real) Deans plugs, a Vox wood prop and a 4s2200 V3 LiPo round out the power package.

IN THE AIR

Prior to the first test flight, I verified that the Vox wood prop was balanced and all controls were set according to recommendations in the manual. Precision

Aerobatics' prop adapter and spinner spun perfectly true out of the box and that means good things for your airframe and power source. Vibrations are the enemy! At takeoff time, the XR-52 was as smooth as silk and gracefully proceeded into the air until I pointed it straight up and pushed the throttle forward. At this point the model attacked the sky climbing up to a few hundred feet in seconds. The power level generated by the Thrust 45 motor is impressive to say the least.

GENERAL FLIGHT PERFORMANCE

Stability: The vortex and side-force generators enhance stability, especially at slower speeds. Even in high-alpha, where planes tend to rock, the XR-52 felt very solid and was easy to control. At higher velocities, the model shows no bad habits. **Tracking:** Deviations from straight and level flight are only induced by the pilot's controls. This model, after trimming, tracks like a dedicated F3A ship and flies very true. I will add that I used 45% exponential and high rates for flight testing.

Aerobatics: There is a start but really no end to what the XR-52 can do in the air. Insanely violent tumbles, locked-in harriers and torque rolls, smooth rolling

maneuvers, tight walls and waterfalls are just a few of the many talents this plane possesses. While it can fly fast and hard, the XR-52 can also sail through the air smoothly and gracefully.

Glide and stall performance: Light weight has its advantages as does more wing area. The two combined are what afford this bird a slow and shallow glide with a forgiving stall. Pull full up elevator and windmill the prop for a cool looking vertical descent all the while you'll maintain full control.

PILOT DEBRIEFING

The XR-52 is a 52-inch-span aerobatic model airplane designed by a company that thoroughly considered the plane's power to weight ratio and all-out performance level. Its incredible flight abilities demonstrate this well. With such an ease of assembly and high quality passed along to the end user it is one of the nicest ARFs out there. A fully tested iPAs system is available and will completely outfit your XR-52 with the same components that the Precision Aerobatics team pilots use, so you know that it's all good stuff!

CONCLUSION Excellent engineering has made the XR-52 an exciting model to fly and it ensures a successful assembly. All parts fit together perfectly and the result is an incredibly lightweight and rigid airframe capable of extreme aerobatics and 3D flight. When powered with the iPAs, package conjectures are eliminated and performance is amazing. The best part is that the XR-52 flies fast and solid when performing IMAC style aerobatics yet it slows down for 3D and is equally at home down on the deck. ✚