



TOYING WITH PHYSICS

EXTRA 330

STORY BY FRED BLOCK
PHOTOS BY SCOTT WOLFF



This is all about fun, so let's start with a game. Make a short list, in your head, of some things you think of as "the best" at what they do. Now, if you would please, add Extra Aircraft.

I'll share my short list with the group: Ferrari, Armani, Four Seasons, Dom Perignon, Extra Aircraft. Follow my drift? Of course we could debate the individual brands and find very fitting alternatives, but the point is, we're talking crème de la crème, top of the top, the best you've ever experienced by miles.

The Extra 330LC is definitely one of those sorts of things.

FLIGHT 1

Driving to USAERO, West Coast distributor for Extra, I know what to expect from my first flight. Extra's positioning statement is "World's finest aerobatic certified aircraft," and I can believe the claim because many of the best aerobatic pilots in the world have chosen Extra as their steed, and I've seen firsthand the seemingly impossible things they can do with them.

Walking to the plane, Chad Graves, USAERO's Extra specialist, approaches with a big smile and a handshake. As we pull the plane out for some photos, I take a moment to appreciate the renowned German engineering and precise fit and finish. This is the aerial equivalent of a Mercedes SLS AMG GT supercar.



True to form, the 330LC's lines give the impression of a capable racecar, and it looks like it's going 200 mph just sitting there. It helps to know that a 330 hp Lycoming is tucked in the cowling — minuscule in the racecar world, massive in the feather-light airframe world.

Embarking on a photo mission today, we review our plan to make sure everyone is on the same page. I strap into my parachute, hop into the front seat, and using the Hooker harness system, ratchet myself snugly into the perforated leather seat. I start to get the sense that the airplane is strapped to my back, and it feels good.



Although the front seat and rudder pedals are fixed in position, they fit all 6'4" of me comfortably. My view up front is simple: an airspeed indicator & altimeter. It's all about weight management, so the front cockpit keeps it lean. You solo from the back seat — the deluxe main office — finely appointed with full instrumentation, manually adjustable rudder pedals and an adjustable seat.

Taxiing out, our photo ship, a Bell 407, tags along behind us. Unfortunately, I don't have my tailwheel endorsement yet, so I'm not signed off to taxi or takeoff, but I follow along on the pedals and it feels like the steerable tailwheel has nice, steady authority.

Lining up on the runway, the 407 pulls ahead and to our left, and leads us on a formation takeoff. Being my first time in an Extra, on my first formation takeoff, with a helicopter no less, it seems there's an exceptional amount to take in over a short amount of time. I can hardly believe how cool all of this is.

As Chad tucks into tight formation for some photos, the close proximity to the helicopter gives me a unique perspective on

how nimble the 330 is. Even without flying, I can see and feel how crisply and precisely the plane reacts to control inputs as we stay in perfect position. We laugh about how lucky we are to be doing this, and let me tell you, it's all smiles. And it just keeps getting better.

After the standard photos were done, it was time for something edgier — as in knife-edge-ier. We set up for a high-speed pass, because in order to hold the knife-edge we need to be going faster than the 407. We pull up hard into a loop, and as we come over the top, I want to pause for a second to point out a few things.

In an instant, I feel 4 to 5 times my body weight, zoom up hundreds of feet, and now I'm upside-down and almost weightless, but still moving fast. The floodgates have unleashed a river of adrenaline — and everything is turned to 11. I feel *goood*.

But it's time I hit the play button, because I see the 407 far below and way out ahead of us now, tempting us to chase it. We slice down and catch up in an instant, roll knife-edge, and scream past the camera for another ear-to-ear grinning pass.



Holy shit, this is fun.

We continue making high-speed passes, some knife-edge and some inverted — after each one, looping and rolling back around in a gigantic game of cat and mouse. But before I know it, Scott's already taken a ton of great photos, and it's time for us to head back in. Photo mission complete. Seriously? That was not nearly enough time.

If there's anything I've learned so far, it's that the Extra 330 knows how to have absolutely ridiculous amounts of fun. Damn. I can hardly wait to get my hands on those controls myself...

FLIGHT 2

Since that first flight, I've been thinking about the Extra quite a bit. Dreaming, really. I drive to the hangar for my second flight, knowing I'll be flying this time. I'm in Pavlov-mode, already pumping some anticipatory adrenaline. My pulse quickens and my smile widens as I slide on the chute and strap into the cockpit.

During our short taxi, Chad briefs me that he'll do the takeoff and then he'll

hand the plane over to me. I follow along on the controls as we line up on the centerline. When those 330 horses come to life, I know all about it. Nearly instantly, Chad brings the tail up, and dabs the rudder to maintain centerline. Accelerating noticeably faster than we had when in formation with the helicopter, it feels like a rocket. When we rotate, the Extra leaves the runway without any doubt — and before I know it, I hear Chad say, "she's all yours, take her up to 7,500."

Taking the stick and rudder, I'm blown away. After holding a steady climb attitude for only a few seconds, the immediacy and feel of the controls is so stunning, I'm astonished it can be this good. There's no doubt that the immense size of the control surfaces plays a part, as well as the fact that everything's solidly connected with carbon-fiber pushrods. But however it's done, my hands and feet are smiling. Due to muscle memory from less-responsive airplanes, I over-control it a bit at first, but once I dial it in, it starts to feel like thought control. I don't really need to make control inputs, I just think, "*Keep the nose up on the horizon,*" and my eyes and hands coordinate the rest quite happily.

Leveled off and heading out to the practice area, the Extra feels super fun just flying along. Partly because it feels like we're hauling serious ass. But

combined with the amazing controls and the panoramic view, the speed feels incredible. With controls as good as these, and with views and speeds to match, I would love to fly the Extra 330 across the country — around the world, if I could.

I can't sit and marvel at everything for too long. We've made it to the practice area and it's time for the real fun to begin. I do a couple of clearing turns, and again, the Extra's beautiful controls surprise me by making this basic maneuver feel so good. But we haven't even begun. Chad briefs the procedures, and the adrenaline pump is on high.

First up, aileron rolls. I know I'm not doing them 100% perfectly, but the Extra makes them feel remarkably easy. In other aircraft I've rolled, it is more of a drawn-out process, and it feels like the controls want to be bigger. But with the Extra 330, it's really nothing but a flick of the wrist, and although it's over before you know it, it feels very much under control, thanks to the mammoth ailerons. So much so that I just want to play with it, and rather than easing in and out smoothly, I purposely snap the controls a bit to do those crisp roll stops that the airshow pilots do. FUN! The rolls are just like they sound, tasty little treats — and I could keep popping them, one after the other, but I need to save room because there are other delicacies on the menu.

Next course, loops du jour. Remembering how amazing the loops tasted during our photo mission, I pull into one eagerly. The elevator is every bit as good as the ailerons and it has an incredible amount of feel. Rather than hauling back on the stick, I can feed-in back pressure for a smooth, but intense 4G climb-out. Looking over my left shoulder, I use the wingtip as a reference to draw a smooth circle in the sky, and as we come over the top, I lighten up on the back pressure to maintain our arc. I don't feel weightless, but definitely light — yet the Extra still has plenty of energy left and it feels like we're carving the air.

Tilting my head back, I see it again — that incredible view. Looking down at the world from the top of a loop is one of the most amazing perspectives I've ever seen. For that all-too-brief moment, you get to see the world in a new way. In the movie *Dead Poets Society*, Robin Williams had his students climb on top of their desks to teach them how changing their perspective could alter their view of the world. As I float upside-down, thousands of feet above the ground, nearly weightless, I try to savor this perspective-shifting view. And with absolutely nothing to obstruct my vision, the Extra's bubble canopy lets me see the entire scene in its full glory. I feel incredibly lucky to see this firsthand, because I realize how very few people actually have. Continuing through the arc, I trade my potential energy for kinetic



energy, and by the time I reach the bottom of the loop, I am rich with speed.

The speed burns a hole in my pocket, and in an instant, I spend it in a Cuban 8. I do the first half of a loop, then coming over the top, I wait until I'm headed 45° nose-down, then roll 180° to upright while keeping on the 45° downhill. I pick up some more speed on the way down, then trade it for another ride back up to do it again. I could do this all day, but there are more fun tricks to try.

Next, an Immelmann – named after famed fighter pilot Max Immelmann, who invented it as a way to turn around quickly, getting his guns on the opponent. Again, I do the first half of a loop, but at the top, I roll a hard half-roll to the left, guns blazing. I should have been a bit more generous with the left rudder, because at the slower speed, that big downward-deflected right aileron caused a bunch of drag while it was rolling us around, and pulled the nose to the right. I missed my first shot, but it's nothing the Extra's monster rudder can't handle next time.

My next trick is a hammerhead – one of my favorites, because for me, it feels like a gigantic version of skateboarding, surfing or snowboarding. It even sounds like the name of a skate trick.

On a skateboard, you push off to build speed, then trade kinetic energy to ride up a ramp. Up at the apex, your trade yields you lots of potential energy, and when you add that to gravity as you ride back down, you end up with gobs of kinetic energy back at the bottom. Doing a hammerhead in an airplane is the same thing – it's like riding a giant quarter-pipe in the sky. On

a skateboard, your propulsion system is your body, one horsepower, which is part of why it's so much fun. But with the Extra, you have 330 horsepower at your disposal, and quite obviously, it gives you more speed and catches a lot more air.

A regular large skate ramp will have about 10 feet of transition (from horizontal to vertical), and two feet of vertical beyond that, making it 12' tall. But in the Extra, the transition is about 100' tall, followed by a few hundred feet of vert. Everything feels exaggerated – the G's you pull as you go up, the height you feel at the top, the view you see when you drop back in, and the speed you get as you ride back down. It's all huge and fast and ridiculously fun.

I pull into the hammerhead just like a loop, but once I'm vertical I hold it there, and I keep my eyes out on the left wing to make sure we keep heading straight up. After about five seconds, I start getting that float of weightlessness, and while I just hang at the top, I kick full left rudder to pull the nose around 180° to the left. Now I'm pointing straight down and I see lots of ground, thousands of feet below, and it's time for me to spend all this potential energy.

Imagine, at this point, if I were surfing, it would be like dropping in on the biggest wave of all time. I start off headed straight down, and at the bottom, I'm going faster than I know is possible, with enough energy to scream back up for the biggest cutback of my life. I can hardly wrap my head around how good this is.

Next, Chad takes the controls to show me a couple of his favorites. First is a hammerhead and a half, or a 540° in skate/surf/snowboard-speak. Next, we do a tumbling, spinning Lomcevak, named after a Czechoslovakian hangover – also something a skater would name a trick after. I certainly could've gone for another round or two, but we didn't want to empty the keg of gas, so it was time to point the nose home.

Once again, it feels like we're hauling ass, and I'm flying along with a giant constant-speed grin. I feel like I do when I'm seeing a good live comedy show, and my face

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with horns. It's really hard for me to imagine how the ailerons could get any better, but Chad explains that the aerodynamic horns added to the tips give a better feeling of control centeredness. As you deflect the ailerons into the slipstream, the horns pick up some drag and provide improved feedback. Then once the ailerons are neutralized again, the horns are back out of the relative wind, making the center spot much easier to feel. All I know is, as I look back and forth between the two 330's, I want one of each, thank you. Wouldn't that be nice?

As you might imagine, an aircraft billed as the "world's finest aerobatic certified aircraft," costs a pretty penny. The 330LC I flew could be yours for \$463,000. That's \$90,000 more than the Lexus LFA reviewed later in this issue. Both, ultimately, are very expensive, highly-engineered adult toys designed to flood you with naturally-aspirated adrenaline – but if you ask me,

there's no comparison when it comes to the bang-for-the-buck ratio. Extra hands you the keys to a whole new dimension. You can soar through the air, blisteringly fast, pull G's, go weightless, motionless, vertical, inverted, slide, roll, tumble and dive – all in one maneuver, if you'd like. Superhero cape not included.

No vehicle – car, boat, skateboard, or airplane – has allowed me to play with the laws of physics quite like this, as if they were little toys. As if I were seven years old again, with superhuman powers, and I can just blast through the skies at will. Thank you, Walter Extra, for creating this machine.

Even if you can't quite afford one just yet, that doesn't mean you need to give up your Extra-sized dreams. You can do what I'm going to do. For one, go out and get your tailwheel endorsement. Then try some aerobatic training after that, in whatever you can get your hands on. Start working your way up the aerobatic ladder. The precision and skills you learn will undoubtedly make you smoother on the controls of everything you fly. Not to mention, a happier and more interesting person.

Let's remember – as we come full circle and race down to the end of the loop, back where we started – this is all about fun. ☺

EXTRA 330 SPECIFICATIONS

Engine:	Lycoming AEIO-580 B1A, 330 hp, 6 Cylinder
Propeller:	MTV 9-B-C/C198-25, 3-blade
Seats:	2
Maximum Gross Weight:	2,095 lbs
Standard Empty Weight:	1,455 lbs
Never Exceed Speed: (Vne)	220 kts
Maneuvering Speed: (Va)	158 kts
Stall Speed: (Vs)	55 kts
FAA Certified Load Factor:	+/- 10 G's
Length:	22 ft 8 in
Height:	8 ft 6 in
Wing Span:	26 ft 3 in



hurts from smiling so much. We're back at the airport in a flash, but man, I wish it wasn't over.

Luckily, there's still more excitement to be had. Like everything else, the approach and landing is fun in the Extra. We come in hot and high, and pull the power back for a steep descent. Even without flaps, we come down quickly, thanks to the immense drag generated by the big 3-bladed Muehlbauer prop. Chad squeaks a 3-pointer, turns off right next to the hangar, cuts the motor, and coasts it in to a perfect stop in front of the hangar door – very nicely done. Sounds funny, but even shutting this thing down is fun.

Unbuckling and hopping out, I thank Chad again for another unforgettably fun flight. I look back at the plane, truly amazed by how good it is. I feel like I need to bite my cheek to keep from smiling so damn much.

As we push the plane back in, we make sure not to bump the other Extra in the hangar, a brand-spanking-new 330LT. Now that I've gotten to know the 330LC, I walk over to check out the LT a bit closer.

The LT is an aerobatic tourer, and Chad explains that the main difference is its new wing. Rather than using a fully-symmetrical aerobatic airfoil as the 330LC does, the 330LT uses a slimmer asymmetric airfoil, like a Red Bull Air Race wing, flatter on the bottom than the top. And to reduce drag, the ailerons and elevator are slightly smaller, and are faired-in at their tips. The wheel pants also use a low-drag design and have a noticeably different streamlined look to them. Combined, the mods make the 330LT the fastest naturally-aspirated piston single aircraft in the world, turning in 205 kts (235 mph). And while the 330LT trades off a little aerobatic performance in favor of speed, it still has plenty enough to be competitive at the unlimited level of competition.

There is also an upgrade to the 330LC I flew – the new 330LX – that features improved full-span ailerons