

**Ultimate**  
aerobatics



# Pilot

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Editorial Extract

The  
**Extra experience**

Flying aerobatics in the awe-inspiring 330LX,  
something to put on every flyer's bucket list



# Ultimate Extra

Well not quite – we have yet to test the all carbon composite NG – but the LX represents Extra's original steel-tube 300 series in its most highly developed form

Words: Bob Davy Photos: Keith Wilson

At first glance, the Extra 330LX looks pretty much like all the other two-seat Extras out there: a sturdy and effective series of aerobatic tourers penned and constructed by none other than Mr Walter Extra himself, and pretty much identical to the original 300. Internal avionics upgrades aside, they do all look pretty similar until you start looking harder – for instance the 'L' in the name denotes that this is a low-wing model, as opposed to the mid-wing, purist aerobatic Extras that you can't actually see out of (on the ground, anyway). The tail feathers are subtly different as is the amount of carbon in the structure, the X also referring to the fact that this aircraft has a power boost too, from 300hp to 315hp, the original extra 300's AEIO-540 engine replaced by an AEIO-580 (AE for aerobatic, I for injected, O for opposed and 580 cubic inch displacement). Multiplying 580 by 2.54 cubed converts cu in to cc – which makes it, yes, 9.5 litres folks. That's just about as big a light aircraft engine as you can get these days.

The first Extra was the single-seat 230, Walter's answer to the Laser he previously flew and his own improvement on it. And it was an aircraft with only one job in mind; to win Unlimited aerobatic competitions. In contrast, the 330LX is most definitely a lifestyle machine. In car terms it would be a GT – a Grand Tourer – rather than an out and out racing car. The comfortable leather seats and modern avionics suite means that the 330LX is just as happy transporting its crew at 170 knots for hundreds of miles at a time on a long weekend to the South of France as it would be competing at an aerobatic competition. For

the same reason that most Aston Martins and Porsches never get to see a race track, you are probably unlikely to see a 330LX at an aerobatic competition – but it's nice to know that you can join in if you want to.

G-11LX's owner Mike Collett reckons you could fly Unlimited competition in it albeit without actually winning (internationally anyway). But at Intermediate and Advanced level it is seriously competitive. Mike is actually thinking about flying it at one or two unlimited events next year.

## Taking the student's seat

For my checkout in the Extra I met up with Mike at White Waltham, home of West London Aero Club and Mike's company Ultimate Aerobatics, which uses the 330LX for teaching aerobatics to competition level, as well as conducting EASA aerobatic ratings, type & tailwheel conversions, and intro flights. My first ride is to be in the front seat – the student seat if you like, with Mike sat behind in the captain's seat.

Care must be taken not to lean on the turtledeck or engine cowling when climbing in – a couple of tiny cracks on the panels attest to this – and its best to stand on the seat cushion before squatting down and stretching one's legs out in the surprisingly roomy space, whilst using bits of the exposed metal tube frame structure as handholds. The seven piece harness (including extra negative g strap) is not intuitive for the uninitiated, so don't be put out to find the instructor hovering over you until you are safely double- →







Handsome four-blade MT prop lends a Spitfire look



Tightly cowled, the Lycoming can be a b\*\*\*\*r to hot-start



All surfaces are profiled for perfect control response



Tailwheel has a carbon-fibre spring and is set well back

ratcheted into the seat (quite literally—the harness is tightened down with a ratchet very much like those used on curtain-sided trucks). Once in, I find the cockpit comfortable and I can reach the pedals easily but I am quite tall. Shorter pilots are assisted by an array of cushions to push them up and forwards as necessary. Electrically-adjusted foot pedals are a £2,400 option but they also weigh seven kilograms! The rear seat is more conveniently ground-adjustable both fore and aft, and in height, using locating pins behind it.

The brake pedals are on top of the rudder pedals—it takes me a while to understand how they operate and also how easy it is to operate them inadvertently. In the end I adopt a sort of pigeon-toed stance with my heels to the side so that I can slide the balls of my feet as low as possible—not ideal, I would say. One important consideration here; the canopy. It costs £15,000 to replace and has to be handled with care at every stage of the operation. To lift it from outside you operate the DV sliding window, then put your hand through and squeeze the two levers together before raising it. Three don'ts: don't lift or lower it using the DV aperture itself because it will crack; don't push it forwards, as this is how you detach it from the fuselage, and don't ever leave the canopy unattended when open, as the slightest breeze or even the prop wash from another aircraft will slam it shut and destroy it. Predictably Mike takes a lot less

time to strap into the back, and I am quickly aware of the whirr of the electric fuel pump to prime the system before he switches it off, closes the mixture lever and operates the starter to the right of the panel (the key is tied to the adjacent tube frame with string in case it gets dropped). Extra engines are tightly-cowled and historically are a bit of a nightmare to get started when hot, due to fuel vaporizing in the lines. However, today we are cold and the engine fires after just a couple of seconds, the highly efficient ignition getting the big six-pot roaring into life. With oil pressure rising, Mike brings the systems on line with the military-style toggle switches along the base of the panel and we wait for just five minutes before we are ready to taxi.

Once clear of anything we might conspicuously be able to hit, Mike hands control to me. The Extra sits relatively flat on the ground and so I can see over the nose but I still make a point of weaving towards the runway because it is good practice. (I get to fly a variety of tailwheel aircraft, most of which are much more difficult to see out of.) Taxying the Extra is easy and the tail is heavy so there's no tendency for it to rise—albeit through force of habit I cannot help but to hold the stick back as I'm moving.

At the run up point I hand back to Mike as he has all the important stuff for the run-up in the rear cockpit. Only the fuel selector and the throttle are replicated in the front (so that the instructor can

allow a student to be in the back whilst keeping control of the things that could otherwise take them out.) The engine run up and vital actions are as straightforward as with any complex single with one exception: fuel has to be selected to the fuselage 'acro' tank for takeoff. This holds 67 litres useable (which is much more than the early two-seat Extras) while the much larger wing tanks hold 120 litres but they are only available when airborne for non-aerobatic flight.

Mike then hands control back to me for the takeoff. I line up on Runway 25, roll forward a few metres to check that the tailwheel is straight and then progressively open the throttle. Then... all I can say is holy smoke! The acceleration is immense and I barely have time to glance at the ASI before we skip into the air. I must have been keeping straight with dabs of right rudder because we're still on the centreline but it has to have been instinct more than skill—everything happened so fast I have no memory of the event.

In the climb the VSI is pegged at 2,000fpm with the ASI at ninety knots, so I reduce power to 24 'square' and lower the nose for a better look forward. Something else I discover I am doing is gently rocking the wings—because they are so sensitive it's easy to over-control. I realise it's just adrenalin and stop myself doing it. At Mike's

insistence I try rolling gently, then with progressively more aileron and... *Kerpow!* Beyond approximately one third stick throw the ailerons' aerodynamic balance tabs enter the airflow and the roll rate triples to around 450 degrees per second. It is astonishing! I actually cannot get anywhere near maximum stick throw because it makes my head spin. I give control to Mike and then brace my head with my hands and elbows jammed against the sides of the cockpit and tell him to give it the beans. Have you seen

that gun camera footage from WWII when a Focke-Wulf 190 gets a wing blown off? Well that's what the Extra feels like at with the stick at full throw. I find myself yelling like a kid. Aerobatics are an absolute dream in the Extra 330LX.

As best described by my ex-fighter pilot friend, an aircraft like this really opens the third dimension in the air—call it 'verticality' if you like. Suddenly you can dive and then zoom through several thousand feet. It's an awesome experience that is difficult to put in words, the same feeling I get when flying a high powered warbird—and the reason I wanted to learn to fly in the first place. My dream was to loop and roll at several hundred miles an hour around fluffy white cumulus clouds in a blue sky. And here we are doing just that. →

**Kerpow! ... the roll rate triples to around 450 degrees per second**



Rear cockpit is kitted out for the pilot in command...



... while the person in front enjoys a minimal array of instruments



Throttle (black lever), mixture & prop



Rear seat, at least, is ground adjustable



The 330LX is the last in the line to have a steel-tube fuselage



Take care with the side-hinged canopy – one false move and the bill is £15,000!



**In the command seat**

Back at White Waltham it's time to swap seats. Don't get me wrong, either one is a privilege but it's nice to be the boss and have access to all the controls. It's now my turn to close the canopy but I can't reach straight up so do what Mike did—I feel behind for the restraining strap, pull it and then catch the canopy as it falls within reach, lowering it gently and then squeezing together and releasing the two catches, making doubly, triply and quadruply sure that it is locked.

This will be a hot start so I switch on the battery, prime as if it was cold, close the throttle, close the mixture, operate the starter and then progressively open the throttle until it catches. Then, all at the same time, it is: mixture rich, close the throttle and punch the fuel pump back on to reduce the chance of vapour lock. Phew! I make sure we are still on the acro fuel tank—the selector is on the right cockpit wall, at knee height.

The rudder pedal geometry is better in the back. The view forward is predictably reduced, so weaving my way to the runway makes even more sense. Lining up, I allow the aircraft to roll forward then open the throttle smoothly, but more confidently than before.

The shock factor is less this time but it's still an amazing acceleration, and once again we are airborne in just a few seconds. *This is addictive.* I pull back to a square setting and climb at 100kt for better forward visibility as I sample those crazy ailerons again. Mike can use the full roll rate and stop at exactly wings-level or wings at 45 degrees, or whatever orientation he chooses, but when I try I'm all over the place—it's difficult to see how I could ever get used to this! It's an odd feeling to be in an aircraft with limitations far in excess of my own.

I try a basic aerobatic sequence and it's easy to do in such a high-powered aircraft. Two things I do note though: first is that the g meter in the back seat records more g than in front. It's because the front seat is pretty much where the centre of gravity and rotation are, whereas the rear seat is considerably behind it. (Mike also has a CAP 232 single-seater and says that the Extra exerts considerably more g on its pilot when flying the same sequence.) The other thing to note is that the aircraft's lack of drag means you might have to pull the throttle back on long downlines so as not to get too fast. Va is under 160kt and it's important to bear this in mind when flying →



Effortless sustained knife-edge flight is but one of the tricks in the 330LX's aerobatic locker



I'm cool! Adjusting the mic while leading formation inverted





advanced and unlimited sequences. The aircraft's roll rate is also the reason why you can't carry fuel in the wings when doing aerobatics – because any appreciable amount of fuel present would travel to the outer extremities of the tank and 'hydraulic', hitting the walls like a crashing wave in a sea cave, potentially splitting the tank open. (It's the same for some two-seat Spitfires which have tanks in the D box section of the wings.) On the other hand, the stall is benign in the 330LX as much as it is in all the Extra family of aerobatic aircraft, with a tendency for the port wing to drop slightly due to engine rotation. Typical stall speed for the 330LX is sixty knots.

All too soon it's time to return. Back in the circuit I slow to 100kt downwind and then ninety on final. As the speed comes gently back the nose goes ever higher,

## What an experience! I will definitely be happy to pay to enjoy the Extra 330 again

obliterating the view forward. To fix the problem I fly a curved approach and then cross-control with down wind rudder and opposite aileron, to put one wing down. Now I can see the runway to the side of the fuselage, even better than in a Pitts, Spitfire or P-51, and I wait until the flare before kicking it off and placing the aircraft in the same attitude as when it was parked. Slowly pulling the throttle lowers it to the ground and all goes well for a few seconds until Waltham's notorious bumps have us thumping

along to a standstill in around 250 metres. What an experience! I will definitely be happy to pay to enjoy the Extra 330 again.

While I was at Waltham a new customer climbed into G-IILX for the first time. An experienced Tiger Moth pilot, he's also a retired RAF Phantom jock so he knows a bit about performance. I thought he summed up the flight very well. He said that it accelerated quicker than a Phantom in reheat, and described the whole 330LX experience as simply "mind-blowing".



### EXTRA 330LX

#### Dimensions

Length	6.90m
Height	2.60m
Wing span	8.00m
Wing area	10.7sq m

#### Weights and loadings

Empty weight	660kg
Max T/O weight (Normal)	950kg
MTOW (Aerobatic, two-up)	870kg
MTOW (Aerobatic, solo*)	820kg
*Wing loading	76.6kg/sq m (15.7 lb/sq ft)
*Power loading	3.50kg/kW (5.74 lb/hp)
Total fuel capacity	189 lit
Fuel capacity, Aerobatic	67 lit

#### Performance

Vne	220kt
Va	158kt
Stall (Normal MTOW)	60kt
Stall (Aerobatic, solo MTOW)	55kt

#### Engine

Lycoming AEIO-580-B1A producing 315hp (235kW) driving an MT four-blade, constant-speed propeller.

#### Manufacturer

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