

# International AUTOGYRO 1/4ly

EDITOR: Ron Bartlett, 9, Layton Road, Parkstone, POOLE,  
Dorset, BH12 2BH, England.  
e-mail: ron@autogyro.flyer.co.uk  
Mobile: 07745 195407 Home: 01202 741581 (24hr answer  
phone, please leave a message to get an answer -- IF  
YOU DON'T SPEAK, WE DON'T ANSWER !!).

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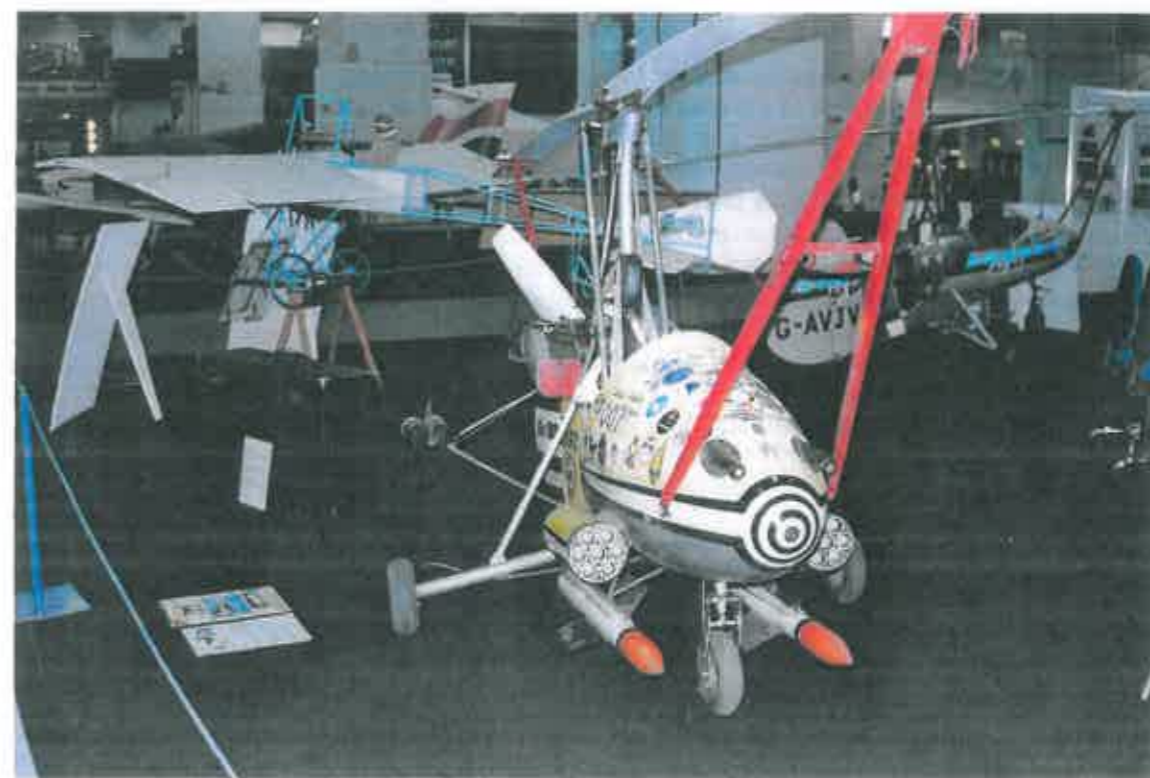


Photos: Opposite, Ken ready to sign yet another book with Ian Hancock behind him and 'Woody' De Saar (centre) answers some of the many questions from visitors to the stand.

This page: Top left Barry Jones inspects the price tag for the ELA while Roger Savage checks the calculator. Top right: Woody De Saar, in a rare break during the proceedings, relates the size of the fish he caught, hmmm!, that long hey? muses brother Wim. Other photos are of the display on the Wallis stand. All photos by your editor.



Above: Barry Jones tries on the ELA-07 for size at FLY The London Airshow at Earls Court in April this year with Roger Savage supplying the answers to Barry's technical questions. Other views from the show can be found inside this issue. (Editor's photo).



## ELA-07 - The two-seat Trainer

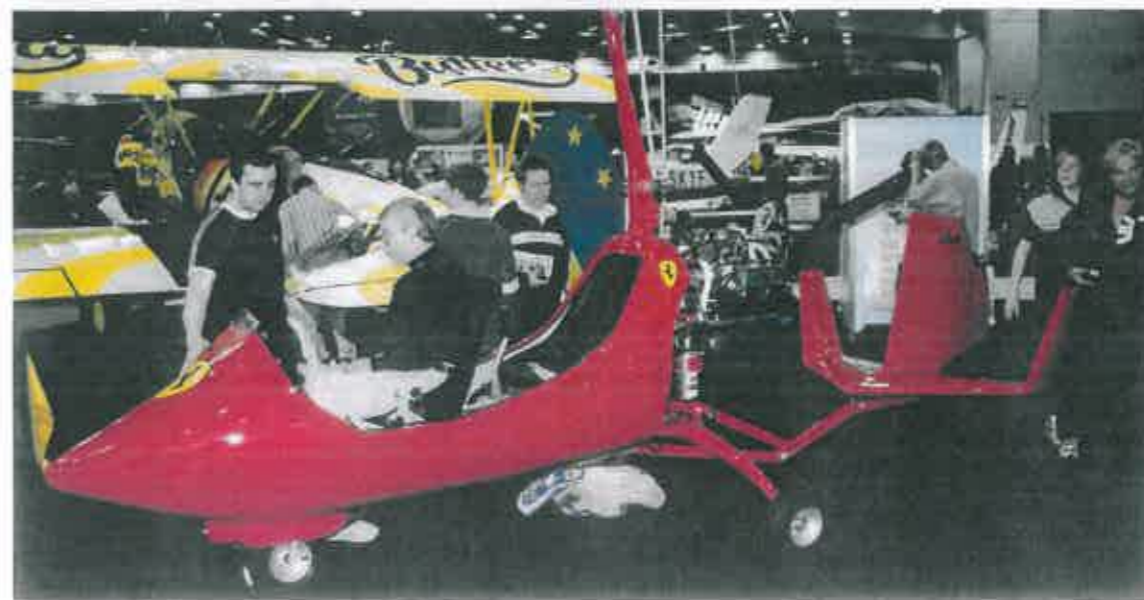
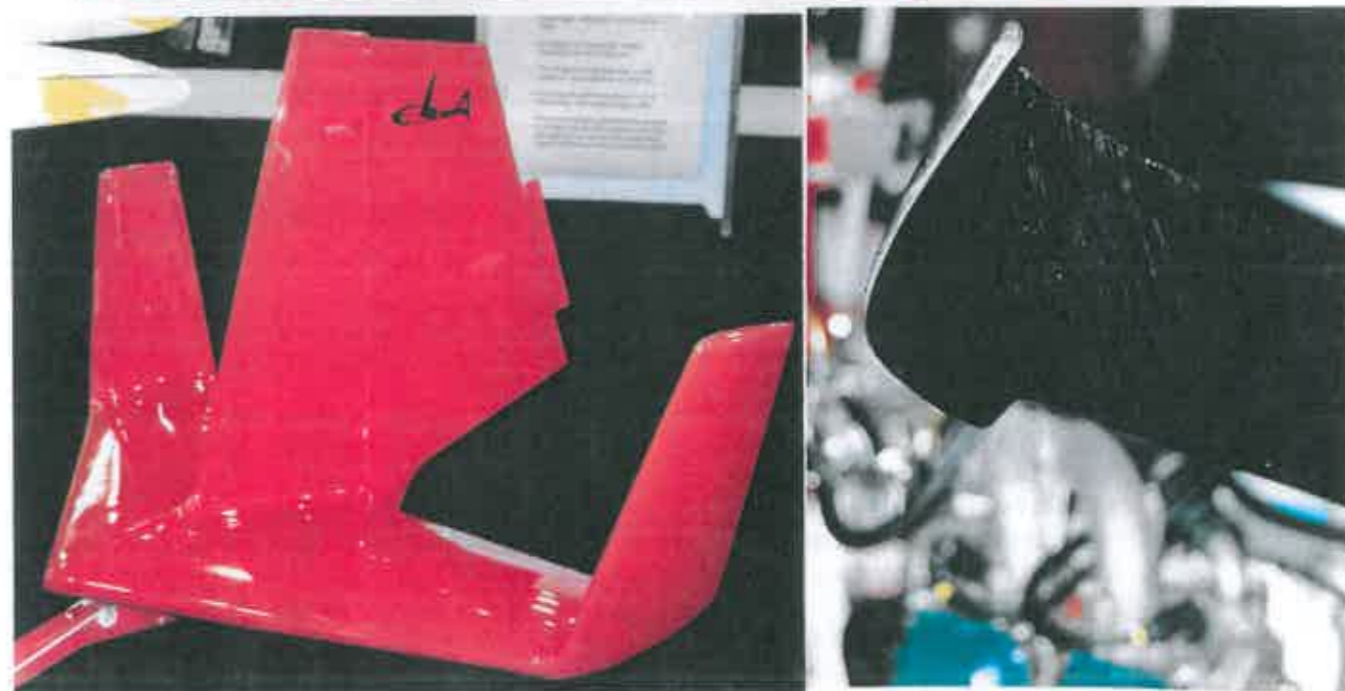
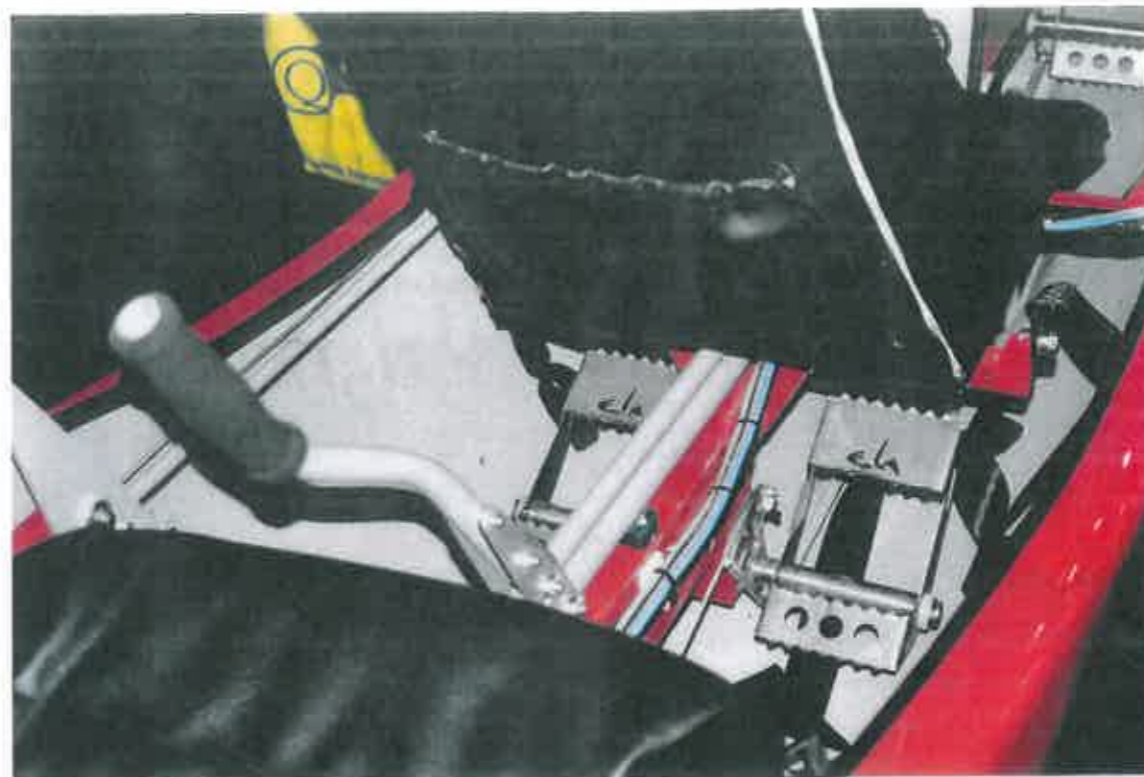
### Market Heats Up

Grinon village, in Spain, is to the south-west of Madrid and less than 10km from Getafe, the location of the first flight of Juan de la Cierva's pioneering C.4 Autogiro on January 9th 1923.

Operating from a hangar near Grinon, the autogiro pedigree is being further extended by Emelio Lopez Allmany (his initials making up the company name ELA) and his two sons Daniel and Emilio Sanchez, who have designed and built a series of autogyros that started with the ELA-01 in 1992.

This was basically a 'proof of concept' machine, and with the engineering lessons learnt from the ELA-01, they constructed the ELA-02 gyro glider. As with most gyro gliders, the ELA-02 was towed aloft by a car and cable combination and first flew during 1993. The ELA-03 resulted from further development, testing and refinement, this was their first powered machine and first flew during 1995 powered by a 582 Rotax. Flight testing of the -03 provided more than encouraging results and inspired the company to extend the basic design's options. The single-seat -04 was followed by the VW powered, fully enclosed -05 and the open cockpit Honda powered -06.

The current model is the Rotax-powered ELA-07 two-seat, an example of which was displayed during the recent FLY London Airshow at Earls Court on the Roger Savage Gyroplanes stand, and is the main subject of these ramblings. (it was noticeable that throughout my 5 hour visit to the show on the Sunday, that it was impossible during several returns to the stand, to get a clear shot of the aircraft, it being constantly surrounded by visitors, such was the high level of interest being shown - ed). Two basic models of the -07 are available, the 100hp Rotax 912 ULS and the 115hp Rotax 914 Turbo powered versions. An integrated pre-rotator gives between 250 & 300rpm with a reported still air take-off distance of 50m and is engaged from the left hand side of the front cockpit, just in front of the throttle and wheel brake levers. The ELA-07 features dual flight controls & throttle, though the rotor controls, trim and flight instruments are only fitted in the forward seat position.



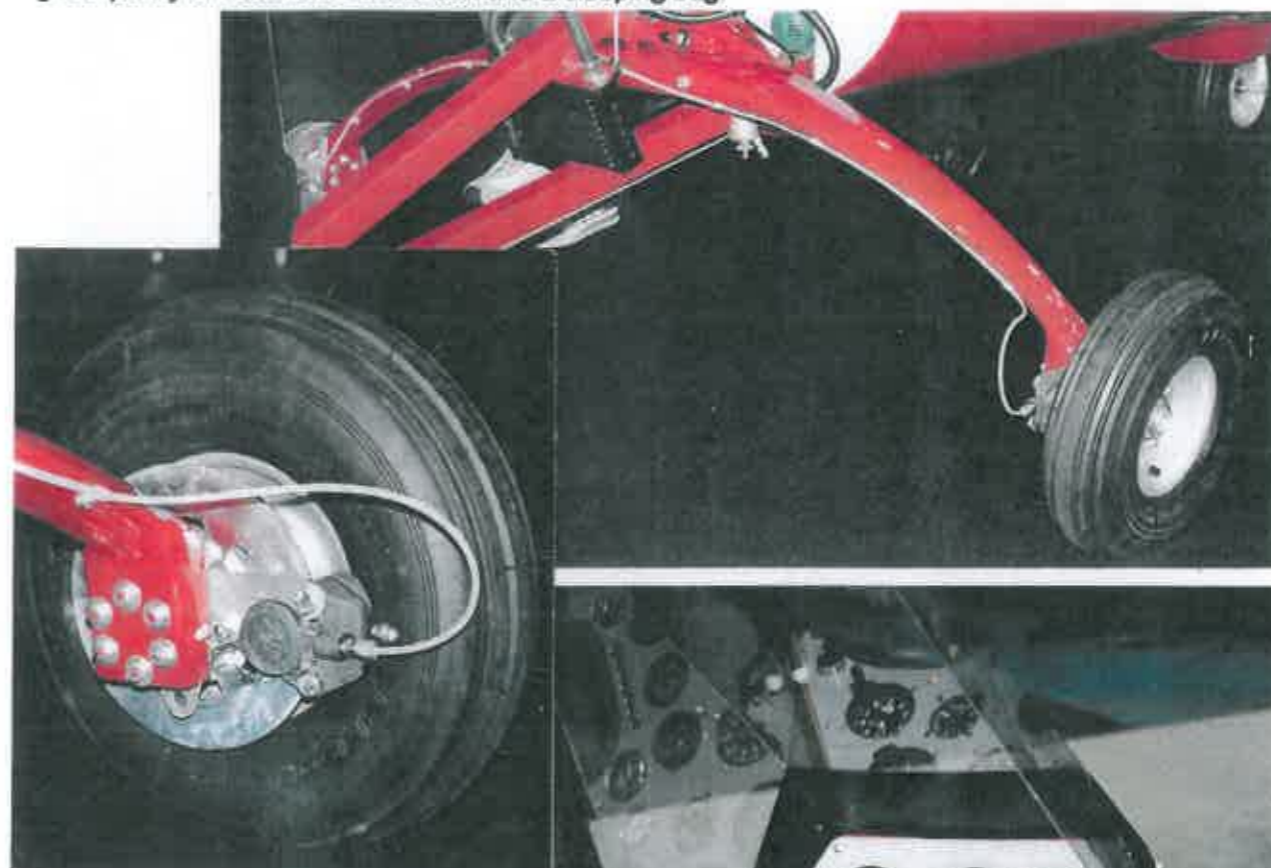
French - built aluminium rotors are utilised, this choice of aluminium being taken due to ELA's previous experience with inconsistent quality during earlier experiments with composite designs, any imperfections arising from the final curing process led to difficulties in balancing and the possibility of vibration.

The 'dropped V-shaped' tail mounting reflects the use of the ELA's propeller, the 1.73m diameter, carbon fibre DUC with profiled tips. The only other option would have been to mount the engine higher, but this would have had an undesirable effect on the thrust line, increasing the possibility of P.I.O. in the hands of inexperienced pilots - after all, this is being eyed as a potential training machine. As a spin off, this part of the -07's design actually contributes to a stronger frame and also forms a natural shape for the take-off and landing flare, with no need for a 'bump' tail-wheel to protect the tail feathers - though the example at Earls Court did indeed have one installed. (David Owen demonstrated the latter on the stand, lifting the nose until the tail assembly touched the ground. If you were in such a nose-up attitude in flight you would have to be in real trouble, in fact you would have corrected the angle of attack long before you got there). The long moment arm makes the aircraft extremely stable, further negating the effects of P.I.O..

Rotorhead trimming is via a pneumatic system, ELA remarking that this provides a smoother, more progressive trim than an equivalent electric system. The small pneumatic pump that powers this system is mounted on the rotor mast behind the rear seat. On earlier models the trimming switch was located to the left of the throttle and pre-rotator lever, leading to a very 'busy' assembly. On the later model displayed at the show, the switch had been moved to a more conventional position on the control column, the handy hat switch making it adjustable in flight without the need to remove your hand from the stick.



The main landing gear is constructed from resin epoxy and glass fibre. This leads to a forgiving structure, the robustness allowing for possible hard landings and the continuous 'touch and gos' when being used for training. This design also gives a very clean assembly that attracts minimum drag. A stainless steel frame ensures virtually no corrosion and the carbon fibre pod gives strength coupled with light weight. The cockpit width compares favourably with Magni's VPM M-16 2000, and as the ELA-07 is also being promoted as a true touring machine, this gives plenty of room for a small tent and a sleeping bag.



Fuel is contained in a 75 litre capacity tank, the unleaded fuel returns 13 - 14 litres per hour with two up, equating to around 5 hours duration, that reduces to 10 litres /hour with single occupancy, giving a creditable 7 hours duration. Again, with two up, you can expect a cruise speed of 70 - 75mph that increases to 80 - 85 mph single.

Cockpit instruments include altimeter, vario, air speed rpm, engine rpm, compass, hours meter, temp gauge, oil pressure and fuel pressure (intercom, Headphones, radio station and GPS comes as extras).

The aircraft at the show was due to be registered to Mike Mee, who will be involved in the Section T engineering compliance testing. This will benefit the programme by drawing on the experience he gained processing the

