

**TEST ULM multi-axes**

Texte : Rodolfo Biancorosso, Dimitri Delemarle, photos : Rodolfo Biancorosso



# ZIGOLO MG12

## 7 999 euros\* ... all in !

After the Piuma flex-wing last month, we continue our tour of financially accessible ultra lights. Here is the Zigolo built by Aviad ... An appealing bird ?

\* a little over US \$10 000 (march 2013)



Here is one of the sources of inspiration for the Zigolo. This is the Goat 1. This small single seat glider has often traveled 100km circuits and up to 13000ft ceilings. This machine is the work of Mike Sandlin. Photo here taken at Horse Canyon (San Diego California) in 2004.

### THE PRICE

Let's start here! It is so rare to see an ultralight whose price is limited to four digits: 7999 Euros, is the price. Fine, but what do you get for your money? Everything, that is to say a complete advanced kit with engine, airframe, parachute ... The Zigolo is certainly the cheapest multi axis on the market! It only remains for the owner the simple job of putting it together. According to the designer, Francesco Di Martine, it does not require more than 100 hours to assemble, cover and install the engine.

### PHILOSOPHY AND CONSTRUCTION

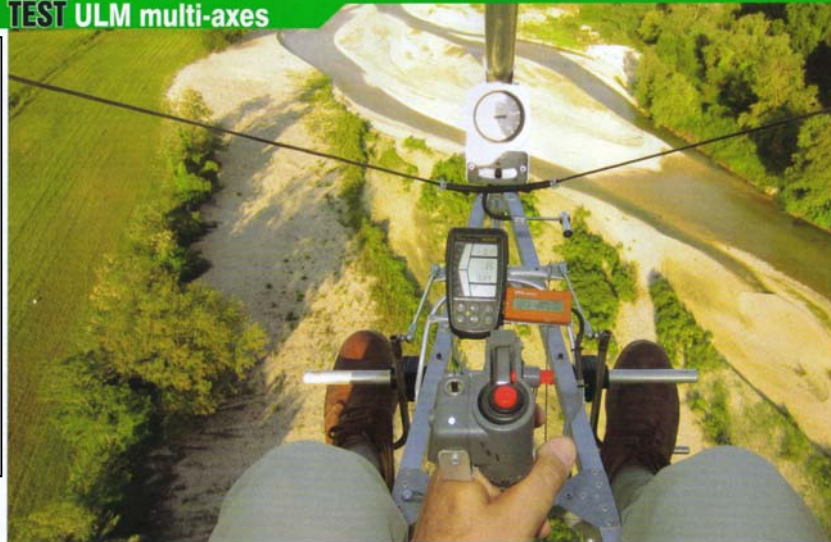
The Zigolo (translation: Bunting - a kind of small bird) draws its inspiration from small gliders like Mike Sandlin's Goat (<http://m-sandlin.info>). These basic machines are ideal for fun local

Who says that a multi-axis microlight is unaffordable? The Zigolo is one of the best examples with a price well below 8000 Euros for a new plane, equipped with a parachute.

flying, taking off from small hills or by being towed. . It is on this tried and tested base that Francesco Di Martino has developed his Zigolo. The economic crisis that has hit Italy has certainly brought things to a head. To continue to fly in these difficult times, one must re-examine one's means ! Not to worry, it is often these simple, basic and "sitting out in the air" machines that give the greatest sensations! Our testing was done in two stages. After flying for the first time on the prototype, we returned for a final test. As at the Ozzano air meeting in 2012 where the Zigolo was first shown, wherever the machine is seen it causes a stampede. The Zigolo intrigues people and always raises big smiles.

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Flying the Zigolo . It's fun! This is the prototype, which has since received a refit of its front section. I can assure you the visibility remains exceptional. Note that the rudder is operated by an offset axis and a set of rods.



To lend credibility to his machine, Francesco had the good idea of flying into the show, traveling the 230 km at the stratospheric average speed of 60 km/h. He left the same way after the meeting. Admittedly, as with the Piuma, tested last month (VM 324), the Zigolo is not meant for crossing France in a day. Its appeal is elsewhere! With this minimal ultra-light, it is obviously possible to fly about locally with great satisfaction. The other side of Zigolo is its ability to glide. With a reported glide ratio of 11, this ultralight floats like a cork in lift as we will see below.

**CLEVER**

Compared to the first model, some changes are noted on this more recent version. The body is now equipped with a covering on its front part, using translucent

Mylar sheets, making the plane more aerodynamic. The tail has also changed a bit and the wing struts have been profiled. The flight controls are now using Tele-flex.

On the yaw controls, two springs have been installed for a stronger natural stability. The parachute is located just above the pilot. The position of the handle is close to his head at an angle and in a perfect position for grabbing it quickly and without looking. As said before, the parachute is of the compressed air extraction type. It comes with the kit and the container is made of carbon.

The body is a lattice construction made with good quality materials. Despite the price, corners are not being cut! The assemblies between the different parts use the usual bolts, some connections use plates and a handful of rivets. The most difficult parts or those that are important for safety reasons are already pre-assembled. The pilot's seat is placed on the structure made of square tubes, with, behind the seat back, the 12 liter tank.

Fuel consumption is about 3.5 liters at cruise speed. So the manufacturer has estimated a cost of 15 euros per flight hour for this multi-axis plane! The Zigolo, being a tail dragger, has a pair of elastomeric pad shock absorbers. Its rough terrain capabilities are great as we shall see!

The wing, with a dihedral angle of 3 ° provides 15.8 m<sup>2</sup> of surface for a wingspan of 11.1 m. Its construction is made easier by the advanced design of its ribs. First of all, these are all the same size along the span. Even better, they are equipped at the leading edge and the trailing edge with a collar welded in place. Simply slide them on and tighten them once they are in the right position.



Internally, a few compression tubes and a pair of wires provide rigidity. Even taking your time, it takes less than an afternoon to assemble the wing. There remains the covering which is done with Dacron 90 g/m<sup>2</sup> fabric, idem for the vertical and horizontal tail pieces.

**THE MOTEUR**

Two stroke, single cylinder! A super engine that we already appreciate from our long experience of paramotors. The latest version has a two-bladed 130 cm GT propeller, which allows the engine to get up to 8400tr/min.

Another change will be made soon with a hood to direct fresh air onto the cylinder head to maintain temperature levels even in the heat of summer.



1. Taking off in the Zigolo. The transition onto the main gear is easy.

2. Close up of the emergence parachute. It's a compressed air model. It is installed just above the pilots head

3. The command lines use Teleflex with bell cranks and adjustable connecting rods to allow for fine tuning

4. The trigger style throttle is on the stick. The top red button is a circuit breaker. The one on the side is a cruise control.

5. The front part is now covered with a coating composed of Mylar sheets. New with the production version, two large springs provide a good return to center for the yaw controls

For the rest of the engine, it is very simple and well known: Walbro diaphragm carburetor, belt reduction gear, air cooling, electronic ignition, hand pull- starter ... It weighs 12.9 kilograms all in, for 25 hp and about 75 pounds of thrust. Fuel is provided by an 11 liter crash and fire proof tank.

#### LETS GO FLYING

The ground temperature is 26°C and the takeoff weight 192 kg. Our test machine has an empty weight of only just 105 kg. Wing loading is therefore low at an interesting 12.15 kg per square meter. Taxiing does not require special skills just a bit of practice. All the same, the Zigolo is centered slightly to the rear when on the ground and it takes a bit of speed and power to lift the tail. With no headwind and without pushing it, takeoff happens after a 60m roll with climb rate of 1.7m/s. Engine (propeller) torque is virtually nonexistent. The initial climb at 55km/h is uneventful. Level flight is significantly improved with this new wooden GT propeller. The original prop was used by motorized Para gliders and its pitch was unsuitable for the flight envelope of the Zigolo. The cruise speed has changed significantly with this version. The general stability of the microlight is positive with a phugoid period of 20 seconds and 2.5 cycles. Yaw stability has been improved, but although the new springs are already doing their job, this axis still needs to be fine-tuned.

In a roll, the ailerons with their new Teleflex commands have gained in efficiency and accuracy. Although the stall occurs without real warning signs at about 45 km/h, its gentleness is only equaled by the ease of recovery. At 50 km / h, the Zigolo always has full authority in flight with controls maintaining efficiency and retaining good defensive leeway.

#### AND GLIDING?

Engine off, the Zigolo turns into a nice little glider for local flight. It does very well and it's a real treat for climbing thermals. Relative wind noise around the cockpit is an excellent indicator of the mass of the air! In this engine-off configuration, the Zigolo keeps all its authority with efficient control surfaces. Piloting round the center of thermals or keeping on top of a ridge dynamic with absolute precision is childishly simple! The efficiency (?), the minimum weight of the unit (192kg for our test) allowed us to calculate a glide ratio of more than 10 at 59 km/h with a min Vz around about -1.4 m/s at this speed. These figures are certainly not the best around for a glider but for an ultralight at less than 8000 euros it's not bad ... and I assure you that it is perfectly possible to learn to glide this way! Some training centers are already thinking of equipping themselves with this machine to introduce soloed students to this type of flying.

#### VITTORAZI?

Since 2010, the engine manufacturer Vittorazi has been installed in a new 600 m<sup>2</sup> building. Their specialty? The two stroke engine. Their main activity is in paramotors although the company is diversifying into aerostats, flex wings and now multiaxes. The company, founded in 1987, is recognized for its expertise. The Mosler 185 on our test Zigolo is a model of simplicity and reliability. The aluminum cylinder is treated with Ni-Casil. At 184.7cm<sup>3</sup>, the 25 hp engine, weighs only 12.9 kg in the version with manual starter. With a 130 cm propeller, 75 kg of static thrust is possible. Particular attention was paid to noise. The carburetor is a Walbro membrane model. The gear belt has a ratio of 1 to 2.7. The fuel consumption does not exceed 4.5 l/h at cruise speed. [www.vittorazi.com](http://www.vittorazi.com)



**CONCLUSION**

With this final and accomplished version the Zigolo confirms one thing: what a great little toy this unconventional micro light is! It is an understatement to say that our ultra-light movement has, in the past, completely shunned this style of aircraft. Of course, the Zigolo is unable to fly right across France, or carry "the other half", let alone cruise at "210/220 klicks". If that is what you want, the Zigolo is not for you. If your pleasure is to get into the air, face in the wind at 70 km/h and climb around the slightest thermal that passes by, this micro light could be exactly what you are looking for. The final version of the Zigolo MG12 as tested by us has no defects. Its tail dragger undercarriage is simple to manage; in any case it lands at the speed of a push bike!

The machine is disassembled and half an hour later, everything is loaded on the trailer. The price of the kit is truly a "miracle" in our micro light world where prices have discouraged many of us ... especially the youngsters. As with the continuing success enjoyed by Para motoring, the Zigolo offers (finally) the possibility of flying with a new plane without breaking the bank. It is rare enough to be "double underlined". This micro light is the proof of a renewal in our sport, just like the Piuma flex wing (5500 euros) presented last month.

**Welcome to the world of the motorized ultra-light.**



Preflight inspection ? Easy ! Simply lift the machine with one hand to check the condition of the wheel, brake and tire.

<b>DIMENSIONS</b>	
Wing span	11.1 m
Surface	15.8m2
Empty weight including :	95 kq
Engine	Vittorazi Moster
Power	25 ch @ 8400 tr/min
Reduction drive	belt 2.7/1
Propeller	2 blade GT 130cm
Max weight	200kg
Tank	12 liters
Price for the complete kit	7 999 euros
<b>CONFORT</b>	
Width of cabin	Open cabin
Height of cabin	ditto
Length of cabin	ditto
Seat	fixed
Pedals	fixed
<b>VISIBILITY</b>	
Front	excellent
Sides	excellent
Above	excellent
Below	excellent
Behind	excellent
<b>SECURITY</b>	
Seat belts	4 point
Dangerous features	None
Slack in controls	None
Instrument calibration	OK
<b>EQUIPMENT</b>	
Brakes	None
Parking brake	None
Air ventilation	You bet !
Radio	None
Transponder	What for ?
GPS	None
Parachute	Compressed air
<b>PERFORMANCE DURING THE TEST FLIGHT</b>	
Take-off time	5 s
Vz	+1.7m/s @ 55km/h @ 8400rpm
VNE	90 km/h
Vs	36.5 km/h

**CONTACT**

**AVIAD**  
**Bore del chienti**  
**62014 Corridonia (MC)**  
**Italie**  
**+ 390733.283342**  
**cornmerciale@aviad.it**

NOTE: V1, Speed indicated by the on board instruments; Vmax, speed measured at full throttle on a 3 leg circuit with 120° turns; Vmc, Minimum controllable speed "everything deployed" (flaps etc); Vmax is corrected for air density, temperature and engine speed; Rate of roll is measured from a stabilized 45° position to a 45° opposite position making optimum use of stick and rudder; Vz, Rate of climb measured by a "alti/chrono". The RPM is that indicated by the flight instruments. The weight during the test is calculated using the empty weight indicated in the « Dimensions » (see above).