

ATMONAUTI FLY

WHAT IS ATMONAUTI?

Invented by Marco Tiezzi and developed with Gigliola Borgnis, Atmonauti is a human flight technique. It's flying diagonal with a relationship between angle and trajectory speed of the body, to obtain an air stream that permits lift and a precise control of flight, with the aim of flying in formation at the same level and with the same angle. Further, to be able to perform different aerial games, such as freestyle, three-dimensional flight formation with grips and acrobatic freefly manoeuvres.

All this is not executed in the normal vertical trajectory of the gravity force, the Atmonaut creates his own diagonal trajectory and thanks to this technique, he regulates with extreme precision all the parameters, such as the angle (trim), speed, direction etc. becoming a real "flight pilot" of his own body.

The word "atmonauti" ("atmonauts" in English), also invented by Marco, means ATMOSPHERE NAVIGATORS, like "astronauts" (astro=space nauts=navigators) and became the ideal "definition" of this new way of flying.

HISTORY OF ATMONAUTI

In 1998 Marco and Gi present Atmonauti to the world at freestyle competitions and some of the world's biggest boogies like the European Espace Boogie and the Eloy FreeFly Festival.



Photo: Luca Poretti

Gigliola Borgnis performing atmonauti feet first.

The Atmonauti fly evolves and marks another important step when in 2001 Gi discovers the possibility of flying in the angle trajectory with her feet first instead of head first, realising something that was considered impossible and confirms the open potential of Atmonauti fly.

In 2002 Marco introduces the Atmonauti Tandem realising, also in this case, something considered impossible. They experiment with the Atmonauti technique for maintaining the same angle and speed of a normal Atmonauti fly, but with double the weight and without a drogue. Tandem atmonauti offers the passenger a real sensation of flying instead of falling.

Also in 2002 Atmonauti becomes a reality known and practised all over the world. Atmonauti also becomes a compulsory move of FAI Freestyle and Freefly competitions. At the end of 2003 their short-film "Atmosphere Navigators"



Photo: Luca Poretti

Marco Tiezzi in an Atmonauti Tandem .

composed of only images in Atmonauti angle fly wins the first prize at the Flyboyz Film Festival, voted for its unique images and for the technical content of highest level.

In October 2004 Marco discovers the possibility to fly Atmonauti in the wind tunnel, flying around the perimeter of the tunnel in a side Atmonauti position.

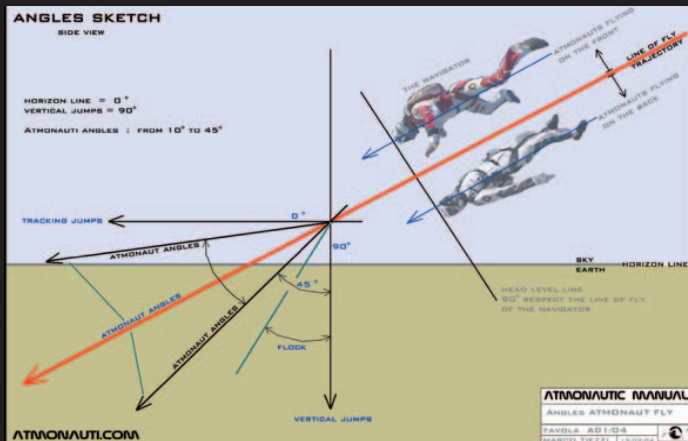


Photo: Tora

TUNNELNAUTI ... the tunnel navigation - Atmonauti fly in the wind tunnel

ATMONAUTI TECHNIQUE

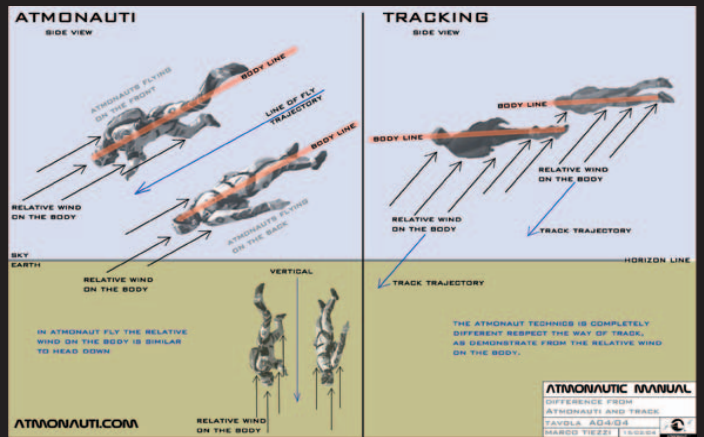
The technique of the Atmonauti fly introduces the concept of using the human body more like a wing contour that is able to have an horizontal fly performance. In practice, the body is used like an airplane whose engine is constituted by the angle - the combination between speed obtained, the angle and the different forms that can assume the body ie. the possibility of "piloting" and flying with extreme control and precision: navigate the atmosphere.



In this table the angles of the Atmonauti fly are indicated, with respect to the other disciplines of movement, ie. the track and the flock. The track is "flat", in line with the horizon (about 0° - 10°) and the flock starting from a vertical position (about 89° - 60°). In practice the Atmonauti fly is placed between those two typologies, with angles from about 15° to, and not more than, 45°.

But it is much more than the angles, the whole difference is in the technique that is utilised to control with extreme precision the flight. In fact, differently to the track where the regulation is made with all the body leaning against the air flow, in Atmonauti the regulation is more similar to the technique used in head down (see table A04/04): the line head-feet is always straight and is "trimmed" more or less for the regulation of the angle of flight; the speed is regulated conferring to the body a form more or less open ie. more close for higher speed and more open for lower speed. This regulation is basically made with the legs so that the arms and hands are free for games and grips.

The line head-feet also constitutes the direction, that is regulated starting from the head which gives the direction as the starting point of the saying line. The rules are exactly the same for the Atmonaut fly both in "front" that in "back" ("frontmonaut" and "backmonaut").



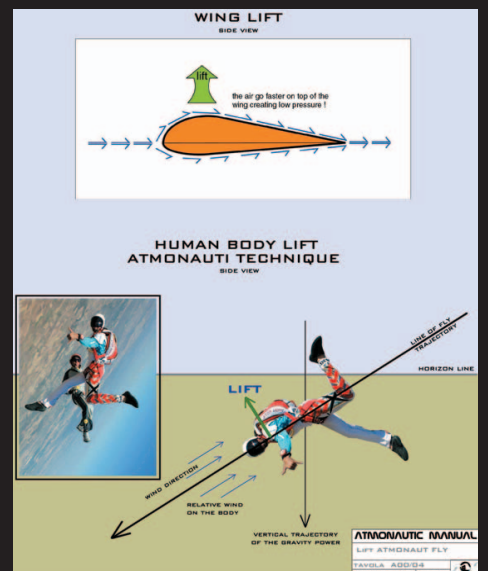
A correct Atmonauti flight creates a trajectory (as a result of a precise combination of angle and speed) in order to obtain on the body a relative air flow as indicated in the table above. The Atmonaut must always have that air flow from the head to the feet. More is the speed, less can be the angle of fly (up to 10°) without losing that air stream on the body. In effect with these conditions the body acts exactly as a wing, obtaining LIFT and the consequence is PERFORMANCE OF FLIGHT!

Never like with Atmonauti, the term "HUMAN FLIGHT" has been so close in having a meaning so concrete and objective!

Be careful with the "STALL": An angle always more flat which does not create an increase of speed will result in losing the above mentioned air stream on the body, causing the stall and arriving in having on the body an air stream like the one of the "traditional track" (see table). In the track, in fact, the horizontal movement is caused by the impact of the air on the "rigid and tight" body, which will not allow any other possibility of movement without losing speed.

Atmonauti fly is the angle that constitutes the engine of horizontal advancement, allowing the body to relax and move more freely without compromising the constant of the fly. For this reason it has been possible to perform complex manoeuvres of freestyle and acrobatic freefly never seen before (see the "guinnes" page on www.atmonauti.com).

The fact is that for the first time we can really talk about real human flying, ie. the LIFT that we obtain on the body with this technique! In fact using the body with an angle of incidence we become in practice like a wing profile whose propulsion is constituted by the angle that allows to maintain the speed necessary to align the human wing profile (the sensation is to be light, weightless and the rig on the shoulder takes off in front by the effect of the depression due to our profile). And this is clearly demonstrated by observing in the photo below, the rig on the shoulder that not only "takes off", but that has the tendency to fly forward from the effect of the lift.





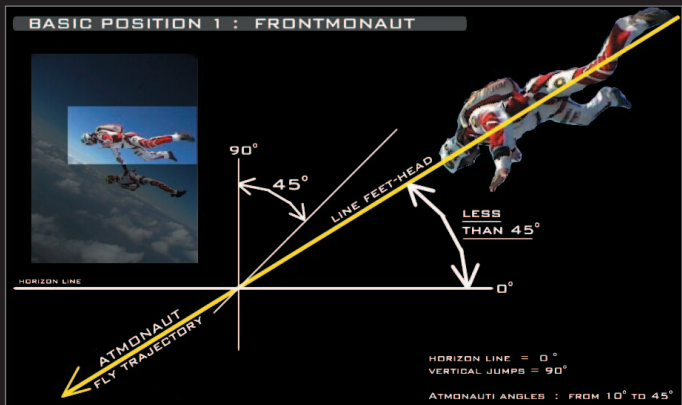
And if this is true for the “frontmonaut”, it is also true for the “backmonaut” for the typical position that they take, which is also similar to a wing profile.

The introduction of Atmonauti is comparable to the passage from the round parachutes (that were slowing down the fall effectuating a “resistant work”) to the modern “canopies” (which start to use a structure with incidence and a determinate profile, obtaining lift and consequently they “fly”). With Atmonauti exactly the same thing happens: the body becomes like a wing profile that placed with a determinate incidence starts to obtain lift and to “fly”! So with respect to the concept of the Atmonauti fly (compared to the canopy), what happens in tracking is more a “resistant” work (concept of the round), opposing a certain form and a certain rigidity to the air stream, that impacting on all the length of the body will slow down the fall and produce the horizontal movement.

The last and final confirmation of the above diagram comes from Gigliola who with the deep knowledge of these rules succeed in flying in Atmonaut fly feet first (as it is in the vertical stand-up)... something not possible in tracking!

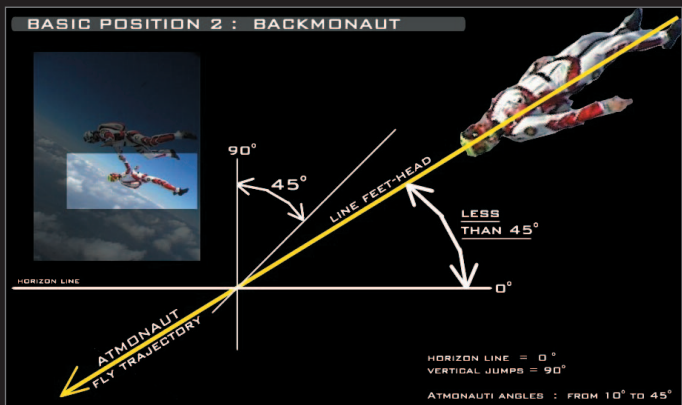
FRONTMONAUT

The head is forward in the direction of fly, torso is diagonal with a maximum angle of 45°, on its front, facing towards the ground.



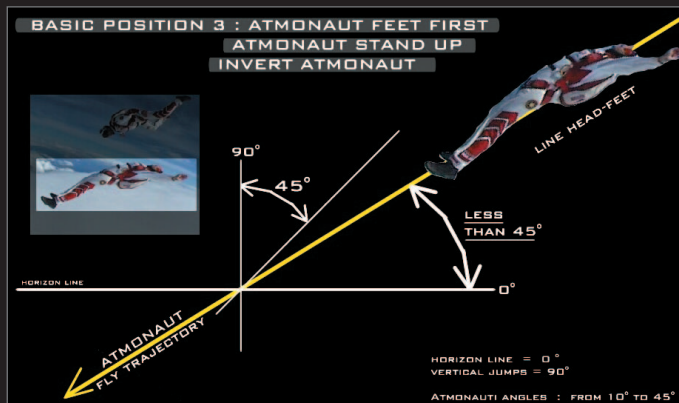
BACKMONAUT

The head is forward in the direction of fly, torso is diagonal with a maximum angle of 45°, on its back, facing upwards towards the sky.



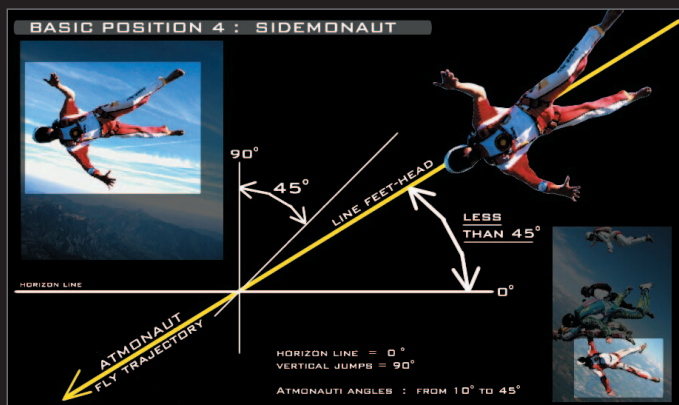
ATMONAUTI FEET FIRST

The feet are forward in the direction of fly. The torso is diagonal with a maximum angle of 45°, on its back, facing upwards towards the sky.

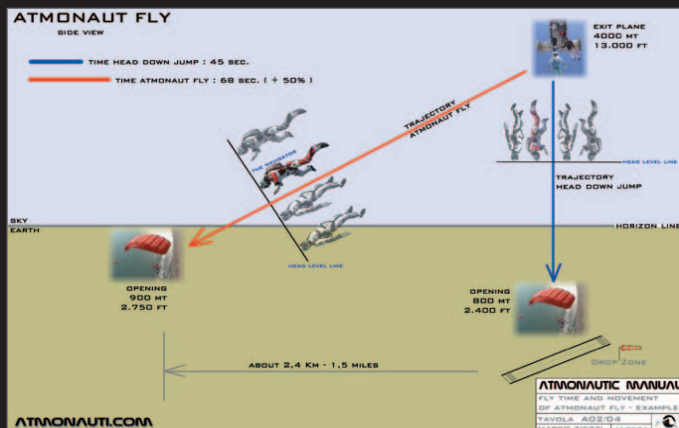


SIDEMONAUT

The head is forward in the direction of fly, torso is diagonal with a maximum angle of 45°, on its side, facing sideways towards the horizon.



The table A02/04 below represents the dynamic development of the Atmonauti fly, showing the diagonal trajectory and the consequential horizontal movement and also the time of flight which increases 50% in comparison to the normal vertical jumps.



ATMONAUTI GUIDELINES

Due to the considerable horizontal displacement of the Atmonauti flights, here are a couple of good rules:

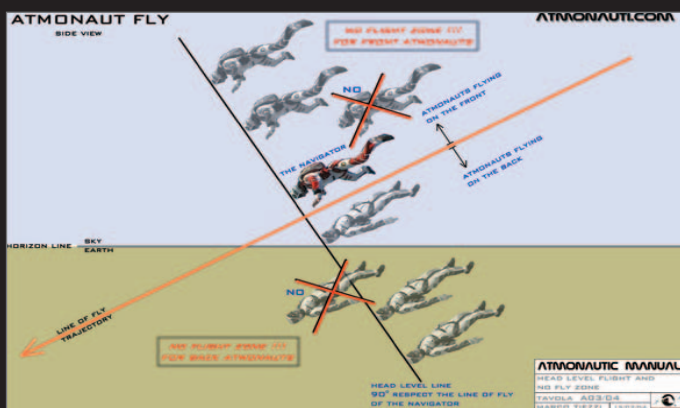
- program and keep a precise direction (to respect the aerial space of other skydivers)
- for deciding the direction take into consideration the wind (from 800 meters to the ground)
- open your canopy higher than usual to be able to get back easily to the drop zone

- verify how many and which groups on the same load are making movement jumps to be able to program the directions to take

The Atmonauti fly introduces a series of problems and questions that in normal jumps are not necessary to take into consideration. For this the correct formation of an Atmonaut is close to a pilot's one, ie. to forecast and calculate with precision all the parameters necessary to perform an own flight in safe conditions (flight plan). The direction is the parameter more important to calculate and to respect during the flight.

Every Atmonauti flight needs to have a "NAVIGATOR". He flies on front, keeping the direction that was decided on the ground and regulates the correct angle of flight. All the other atmonauts both on front and on back fly regulating the direction and the angle equal to the navigator and above all, at the same head level (see table following). He is responsible for all the other atmonauts who fly with him. On the ground is decided the direction, the exit from the plane, the formation flight and the separation. In flight he sets the correct angle, the speed, the direction and he signals the end of work and separation.

The table represents a flight formation with the Atmonauts flying on front and on back. As for all the other disciplines, it is fundamental to fly at the same "level", which means on the same plane, as the basic condition necessary to start a kind of work called "relative", as in relation with others.



While in the vertical disciplines, such level is clearly represented from the horizon line that offers a clear visual reference to compare, but in the Atmonauti fly it doesn't exist, which makes it more difficult in the initial set-up. In the Atmonauti fly the level is represented by a hypothetical line traced 90° in respect to the line of the trajectory of the navigator. It is on this line that the head of the Atmonauts in formation will have to regulate:

- backmonauts more back to respect the verticality of the navigator
- frontmonauts more in front to respect the verticality of the navigator

Such a configuration sets also the "NO FLIGHT ZONE" to respect absolutely so that you don't receive or create turbulence on the air flow for the other atmonauts.

If an Atmonaut on his back gets in the no flight zone he will create turbulence for the Atmonaut above him. If an Atmonaut who flies in front remains more back in respect to the level of the navigator he will take the turbulence and the depression of the atmonaut below. The consequence of the turbulence and of the depression is the temporary loss of control of flight. For a constant configuration of the formation it is necessary to respect those no flight zones.

Those regulations of the level must be more precise, as more numerous and closer is the formation we want to obtain. The exact regulation of the level permits atmonauts to remain one on top of the other extremely close, without it the above atmonaut falls on the one below.



Being an atmonaut means knowing how to control with millimetric precision our own position, the speed and the angle to be able to fly perfectly synchronised with the formation and get inside it interactively for example with a grip... like a plane when it refuels in flight.

In conclusion, we want to emphasise the fact that this kind of flying is accessible to everyone, from little experience (80–100 jumps), relative workers who only need few days to get into it and to good freeflyers who only need a couple of jumps to master it.

ATMONAUTI EVENTS

The main appointment will be the Atmonauti Pro 3 from 1st to 11th of June, 2006, in Italy at Skydive Marche. This is an event completely dedicated to this flight. During the year there will be other events dedicated to the attempt to make a new world record formation and to play the new Atmonauti Games.

The Atmonauti Games includes a) Atmonauti SFIDA - a challenge where the two competitors perform a hand contact on a navigator followed by transitions, b) Atmonauti Race - an indy performed in the angle flight, and c) 4-way ARW (Atmonaut Relative Work) - an interactive game for the more expert Atmonauts where you can express the control of flight at the maximum levels.

ARW4

This is the first experimental competition of relative work in Atmonauti fly in 4-way with video. The Atmonauti technique of flight allows the development of great precision and rapidity of the movements such to permit the realisation of a relative flight and consequently the possibility of making formations with different shapes and configuration.

Revolutionary is the concept according to the freefall time of the contest. It is not expressed in seconds but is constituted by the altitude of 2.500 meters so that a flight trajectory more horizontal allows a higher time to fly and so the possibility to perform more points. But attention is necessary to keep the synchronicity, the speed and the right set-up so as not to lose the Atmonauti fly and pass into a track, thereby losing the precision and suffering the turbulence in the manoeuvres where you fly one on top of the other (for example in the star or flower). Amusement and performance assured!



WEBSITE

Check out www.atmonauti.com where you can find more details about Marco and Gi, the Atmonauti technique, the competitions and upcoming events, the Frick Shop for clothing, Atmosphere Navigators DVDs, posters etc. and the multimedia gallery and photos.

