



## ***A Guide to Silent Flight***

Feeling down? Petrol prices, mortgage and credit card payments all going up? Get a lift back up in the air. Get an eco-friendly model sailplane.

Sailplanes, also called gliders, fly atop rising air. There is no engine noise, only the sound of your heartbeat as you watch your model sailplane become a speck in the sky. How do you get your model sailplane back? How did you get it up there in the first place? What sort of things can you do with your model sailplane when it is in the air?

A model sailplane, just like the real thing, is constantly flying downwards through the air. It must do so to maintain airspeed to provide lift for the wings and airflow over the control surfaces to give the pilot control. But when the air is rising faster than the sailplane is falling then the sailplane can also rise, riding atop the rising air.

Rising air occurs either through thermal lift or slope lift. Thermal lift involves heat. Even in the winter months, there are occasions when the ground warms to temperatures higher than the air above. As you know with a hot-air balloon, warm air rises. These pockets of air make perfect elevators for a model sailplane to rise on. But such rising columns of air are invisible. So the art of thermal soaring is to find a strong thermal, and then to stay in it to rise as far as you can. If you are flying 'point to point' then to leave that thermal to fly in the direction you want to go while at the same time seeking out your next thermal to lift you up again before the prevailing force of gravity brings your model sailplane inevitably back to earth.

Slope lift, by contrast, relies on the wind and a hill. The hill forces the approaching wind upwards, along with your plane. Great slope soaring sites are invariably found where there is a prevailing wind and a long ridge to create a smooth and constant upward wave of air.

Without thermal lift or slope lift, a model sailplane will fall inexorably back to earth. The radio controls allow you to guide your plane to seek out lift and if you are flying from point to point, to move from one source of lift to another in the direction you want to go. And eventually, of course, to bring your sky warrior down to a smooth landing.

There are several methods of launching a model sailplane for a ride on air. The most basic and obvious method is to simply throw the plane with either a javelin or discus style launch. The plane gains about 50 feet of altitude from the momentum of the throw – then you have to hope like crazy that you are going to find lift before gravity brings it inevitably earthward

again. This is where slope soaring has a major advantage because as you launch your model sailplane off the slope you know the lift is there from the oncoming breeze.

Bungee, or hi-start, launching sends a model sailplane skywards like an arrow. The plane is attached to a line connected to elastic tubing that is secured to the ground, or to a winch. Pull the plane back, let it zoom into the air, and grab the radio control. Better, of course to have two people involved so you have control at all times.

Another launch method which emulates full size gliders involves a second powered model airplane to tow the sailplane up and away. This is a nice way of combining a number of modelling and flying disciplines with the towline released by a separate servo actuation.

And yes, though some view it as cheating, there are model sailplanes that feature an electric motor for initial launching and for regaining altitude whenever required. The motor has folding propeller blades that fold back when the motor is not running to remove the propeller blades from the airflow where they would otherwise contribute nothing but drag.

Though it is quite thrilling to watch your model sailplane soar ever upwards, and to remain there due to your skill in seeking out new thermals, there is still more your model sailplane can show you. Slope soaring off a hill usually involves a constant wind and lift, so flyers are not so concerned about losing altitude in a hurry. So diving from altitude makes for speeds up to 100 mph. Then that competitive edge creeps in again and the slope is where most gliders compete.

Racing is either done "F3F" style where your plane's flight is timed, or man-on-man style where you actually race another plane. Sailplane combat, (SSC), is something else again where your objective is to knock your opponent out of the sky and score a 'kill'. Because they obviously crash often, combat sailplanes are made out of foam for easy rebuilds and will literally bounce off the ground due to their forgiving and robust construction.

The Academy of Model Aeronautics, (AMA), features several Special Interest Groups to assist the silent flier. The League of Silent Flight (LSF) provides rules for racing, aerobatics, and a series of thermal tasks. The RCCA offers combat guidance and events. The NEAC offers guidance for electric-powered sailplanes.

(LSF) League of Silent Flight: <http://www.silentflight.org>

(RCCA) Radio Control Combat Association, <http://www.rccombat.com>

(NEAC) National Electric Aircraft Council, <http://www.electricaircraft.org>

So there you have it, beautiful, elegant, thermal soaring model sailplanes or robust, knock 'em down combat kills with cheap, quick to build foamies. Model sailplane soaring is just as exciting as powered flight. So get yourself a model sailplane and get out there and give it a go.

**Bruce Bird**

[www.modelairplanesecrets.com](http://www.modelairplanesecrets.com)

**Author of "Model Airplane Secrets: Basic to Advanced Strategies on Model Building"**