

THERMAL NAVIGATOR

Thermal Navigator user's Guide

The Thermal Navigator is a valuable tool for Thermaling. Now those invisible thermals can no longer hide, but have to move your plane up. With this unit it will soon be obvious, that the air masses are constantly moving up and down.

On days with weak thermal activity the Thermal Navigator shows its greatest strength. Now more days of the year can be used for thermaling. It is quite a challenge to circle in a weak thermal with the lowest sink rate. On days with good activity gain some altitude and then search for a Thermal in a more convenient location.

The further you are away from the sailplane the more important the Thermal Navigator becomes.

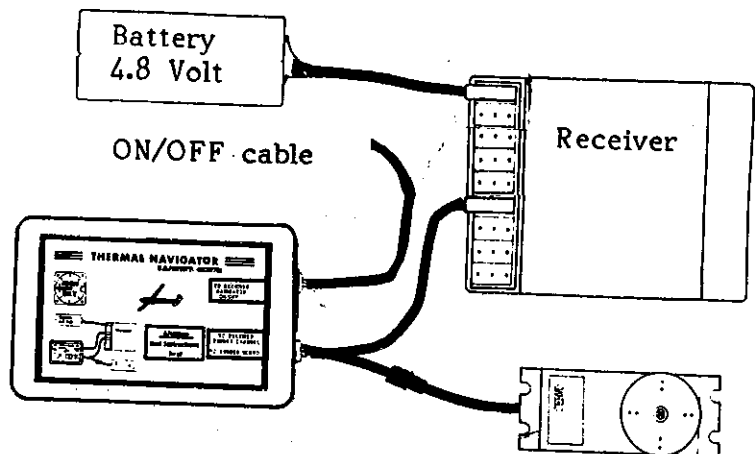
Connecting the Thermal Navigator

Instead of the rudder servo connect the Thermal Navigator to the receiver.

Connect the rudder servo to the Thermal Navigator.

This is like an extension cord with the Thermal Navigator in between.

Ignore the other cable for now.



What does the Thermal Navigator actually do?

To find out: set the rudder on the transmitter to neutral.

Switch the transmitter and the receiver on.

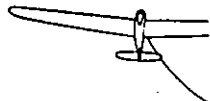
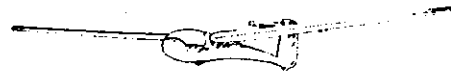
The rudder goes away from neutral for 10-20 seconds. After that pick up your sailplane and move it vertically up and down. Watch how the rudder respond to your movements depending how your rudder is set up. Moving the plane up can cause either left or right rudder. Observe which way yours moves. This is the direction which indicates lift, the opposite direction sink.

Note how sensitive the Thermal Navigator is - touching it causes rudder movement.

Navigator ON/OFF

There is an electronic on/off switch inside the Thermal Navigator because you don't want the Thermal Navigator on all the time.

Connect the switch cable to an empty channel. Move the corresponding channel on your transmitter from one side to the other and determine where the Thermal Navigator on position is. Mark the transmitter. Don't forget to switch the Thermal Navigator off before a launch, otherwise you will get rudder you don't want. Use a retract or other not self neutralizing channel for Navigator on/off. Full throw is needed to switch the Thermal Navigator reliably on/off.



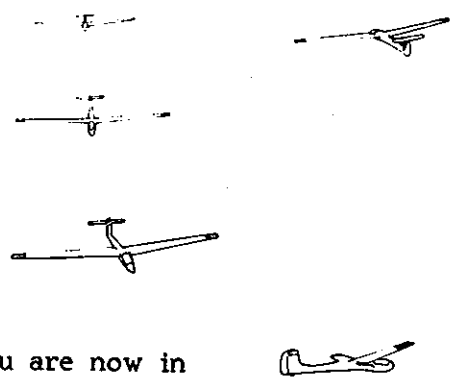
How to search for lift.

Before the launch:

Remember to leave the Thermal Navigator off or you'll get rudder you don't want. At the top of the launch, come off the line, stabilize the plane, and point it in the direction you want to search for lift. Turn on the Thermal Navigator. For this review let's assume right rudder indicates lift and left rudder sink. Let's pretend the sailplane veers off to the left, and the Thermal Navigator is indicating sink. To keep the plane on course give right rudder once and a while. At once the plane goes straight by itself. You are now in neutral buoyant air. Now the plane goes hard left. You are now in strong sink.

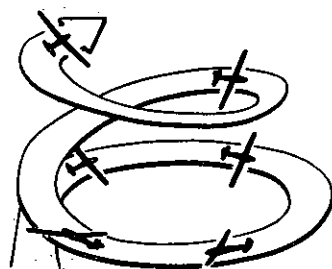
To keep the plane on course you must hold right rudder. After a time the plane goes right. You have now entered lift. Now use the elevator to keep the airplane at a constant speed. When the Thermal gets weaker the turn will be less steep until the plane goes straight.

The best Thermal search results are obtained by switching the Thermal Navigator on intermittently while searching along an established path. Naturally a lot of "techniquing" must be developed by the modeler to fully appreciate all the features of the Thermal Navigator.



Temperature change and accuracy.

The Navigator will not suffer from temperature changes or shock. It is as rugged as a receiver. Since the unit reads air pressure it also reads temperature changes inside the case because air expands with temperature. Install the unit in a dark place. If high accuracy is needed wrap insulating material around it. This protects the unit from draft which exists in airplanes. Then the neutral point will not shift if you switch the thermal navigator on with your transmitter, provided the R/C equipment is running for at least 5 Minutes.



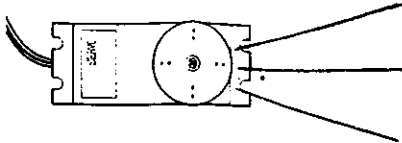
Turn direction

The plane goes to one side when it encounters lift, to the other side when it sinks. There is no easy way to change this. However if you change the servo reverse on the transmitter and install another servo the plane will turn the other way.

Before you fly with the Thermal Navigator.

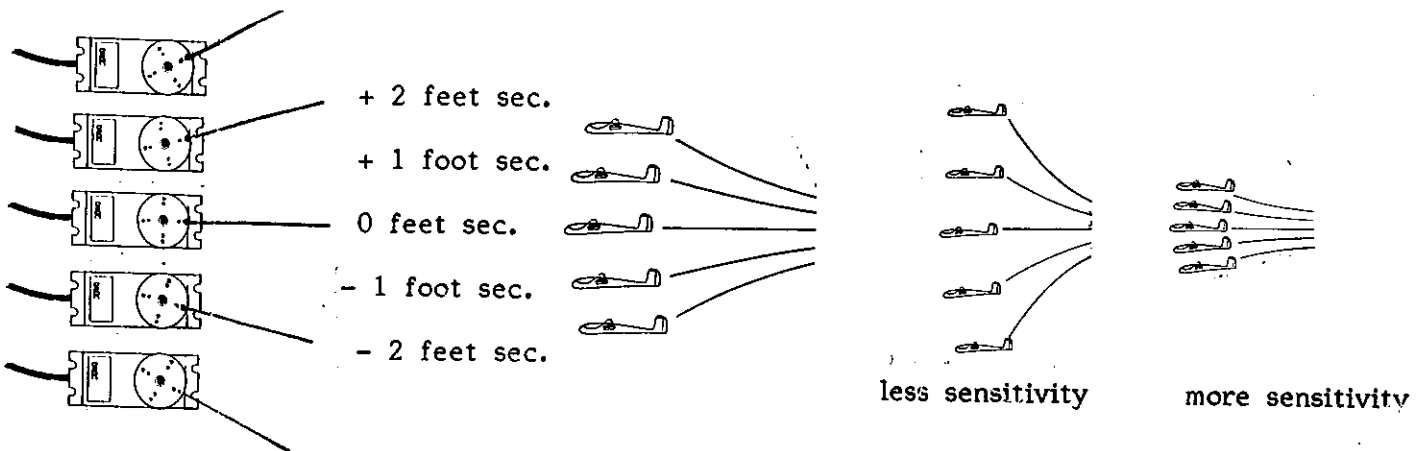
Determine if your airplane is suitable for the Thermal Navigator. The Thermal Navigator increases the range the Servo can move. Rudder caused by climb + full rudder on the transmitter. Check to see if your servo and linkage can handle the increased range.

Max climb position if the transmitter is in neutral



Neutral position if the Thermal Navigator is off or 0 sink

Max sink position if the Transmitter is in neutral



Mark the Thermal Navigator on/off position on your transmitter. Check if you can switch the Thermal Navigator off with full rudder right and left. The On/Off channel needs full throw to switch the Thermal Navigator reliable on/off.

While accidentally launching with Navigator on compensate with the rudder and keep the plane level. Don't panic, just complete the launch while holding the control to the side. Some pilots launch with the Thermal Navigator on and release when the plane is no longer climbing.

The Navigator has a limited range. This way you can still control the plane. This is similar to launching with the trim off center.

Sensitivity adjustment

With this control you can change the sensitivity. If it does not seem sensitive enough, wait until you fly the plane.

The sensitivity can be adjusted. Clockwise = less sensitivity for easy thermal hunting. It takes 10-20 seconds after the thermal Navigator recovers from a sensitivity change.

Sensitivity control.

