



Condensed RX failsafe and RX wizard setup guide (MB)

Glossary : Vector use of **RTH test** and **RTH Failsafe**, as means of triggering Return to Home.

RTH test: Is a direct output activation from the radio transmitter to its receiver, on that specified channel. This function can be enabled by the pilot, and also be over-ridden by stick movements that exceed 65uS from the center stick position. Radio trims that exceed this value will prevent "RTH test" from engaging if they are not incorporated into the setup.

RTH Failsafe: Is activated by a user stored failsafe preset in the radio receiver. So when the radio receiver loses signal from the radio transmitter, it triggers RTH. The Vector knows these presets, from the RX wizard setup. *And it will not be effected by any trim offset. Due to there being no signal coming from the transmitter in a failsafe condition.* Even if the models flying trims are different to the recorded wizard trims; the Vector will still see the RX failsafe condition and acknowledge that it lines up with the wizard stored failsafe condition. While the flight stabilizers heading/altitude hold will provide the correct amount of trim required to fly the model home.

Configuring Receiver Failsafe Detection

You MUST have a receiver that lets you program failsafe positions, to use RTH. All modern receivers should support this.

Before you save the radio failsafe setting. You need to - **"Choose how the Vector Detects Receiver Failsafe."**

A screenshot of a software window titled "Basic Safety Mode Settings". It contains three settings: "Select Desired Safety Mode:" with a dropdown menu showing "Rtrn Home"; "Choose how the Vector Detects Receiver Failsafe:" with a dropdown menu showing "Mode Swch"; and "Fly Home at this Altitude:" with a numeric input field showing "120" and a unit selector showing "meters".

Basic Safety Mode Settings	
Select Desired Safety Mode:	Rtrn Home
Choose how the Vector Detects Receiver Failsafe:	Mode Swch
Fly Home at this Altitude:	120 meters

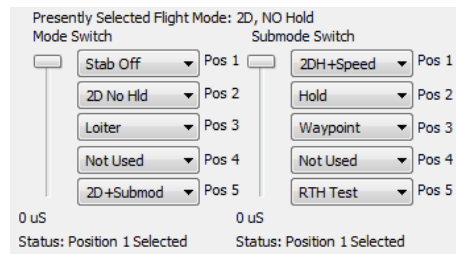
Failsafe is a condition that has to be set between your radio transmitter and radio receiver.

The location of “RTH test” in the “Flight Mode Tabs”(below) has to line up with the Mode/Submode switch position, when failsafe settings are saved to the receiver.

Then when you run the wizard, the Vector will remember these presets.

The method of saving the failsafe condition is different for each radio manufacturer.

The setting and saving of TX/RX failsafe is best done when connected to the Vector software; so you can align your Mode/Submode switches correctly with their allocated flight mode position.



Failsafe Mode switch detection is set by –

- 1) Placing your control sticks (aileron/elevator/rudder) in their center position.
- 2) Placing the throttle in the OFF position.
- 3) Move the Mode or Submode switch that you have selected for “RTH test”, to its selected flight mode position.
Be sure if RTH test is in a Submode, that you have your Mode switch in the position that corresponds to the “**2D+submode**” flight mode selected position.
Also, if you use a throttle kill switch, make sure it is in the ON position before saving the failsafe setting.
- 4) Then initiate the method your radio manufacturer states, to save these failsafe positions.

Failsafe low throttle detection is set by –

- 1) Placing your control sticks(aileron/elevator/rudder) in their center position.
- 2) Placing the throttle in the OFF position and **moving the throttle trim to its lowest position.**
- 3) Then initiate the method your radio manufacturer states to save these failsafe positions.
- 4) Once you have saved the failsafe positions in your receiver, move the throttle trim back to the center again before running the Wizard. The Vector will detect the low trim failsafe position and the normal minimum throttle when you turn off your radio during the wizard process.

By this method, the Mode/Submode switch will still trigger “RTH test.” While the detection of a low throttle condition will trigger a signal loss “RTH Failsafe”.

After you follow these steps, if the error "Throttle Failsafe Incorrect!" is displayed during Vector bootup, that means you did not do the throttle failsafe programming correctly, or the gap between normal and failsafe throttle trim is too small.

S.BUS™ Method:

If you are using S.BUS™ mode with your receiver, the Vector will detect failsafe automatically. To do this, just select the "S-BUS" option for "Failsafe Detection Method".

Configuring RTH/Safety Mode

Selecting the Desired Safety Mode

The Vector has a few options for what to do when failsafe is detected, referred to as "Safety Modes." To select the desired failsafe option, invoke the "Safety Configuration Menu" and change the "Select the Desired Safety Mode" item.

These options are available:

None:

Land:

Return Home:

Running the Receiver Analysis Wizard

The Receiver Analysis Wizard learns about your radio stick directions/throws, the minimum and maximum RSSI output of your receiver, your receiver's failsafe positions, and other information.

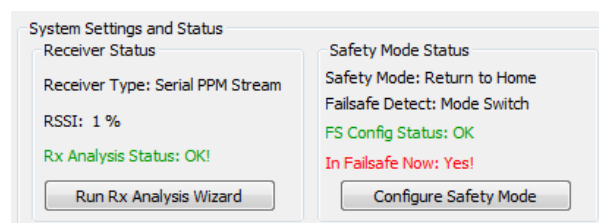
Before running the Wizard, make sure that you have hooked up your RSSI (if used), turned off any radio mixing or throttle kill switch and set your radio trims as desired.

Next, select "Run RX Analysis Wizard" and follow the instructions.

If you make a mistake when you run the wizard, or think you entered incorrect settings. Running the wizard again then will save having problems later.

RTH Ground Testing (signal loss failsafe)

Assuming you will be using Safety Mode/RTH features, verify that receiver failsafe detection is working correctly by turning off your radio, while the Vector is connected to the software and making sure that "**In Failsafe Now: Yes!**" appears, with the RSSI showing near 0%.



Then while still on the Ground and not connected to the software, turn on your models video equipment etc.

If RTH is configured correctly, **after your GPS has acquired a fix** and the **home position is set**, then turn your transmitter OFF. The **"RTH Engaged"** message should appear in the OSD notification area of the video screen. Additionally, the Flight Mode Indicator on the video screen should change to **"RTH"** and **RSSI/ Link quality** will be near 0%.

You may also notice on a fixed wing, the ailerons may deflect as a sign the model is attempting to fly home.



NOTE: If you **do not** see these notifications along with a low RSSI.... **"RTH failsafe" will not be activated in the event of a signal loss...even if it does activate by the "RTH test" switch!**

Go back through the above steps and make sure you saved the TX/RX failsafe positions in your radio correctly and run the Wizard again.

In-air RTH Testing (RTH test mode switch)

The simplest way to test RTH in the air is to move the selected Mode/Submode switch position to "RTH Test". When this switch position is selected, RTH should engage, and your model should fly toward the home point.

Never intentionally turn off your radio to test RTH in the air. There is a chance your receiver will not link back up with your radio, which could result in a crash! **It is unnecessary to turn OFF the radio in the air, if the previous ground test has confirmed signal loss failsafe RTH has engaged.**

When in **"RTH test" mode**, **RSSI will show good signal**, and moving the control stick causes RTH to disengage, and the Vector will switch back to 2DH mode.



Note that for proper operation of “**RTH Test**,” your flight trims must be within the 65uS operation deadband of the recorded “RX analysis Wizard” trims.

If you have made changes to your trims that exceed the 65uS either side of the 1500uS stick center, then the message “**RTH Engaged: Release Sticks for Test**” will appear, and the Vector will remain in the previous flight mode until the trims are incorporated.



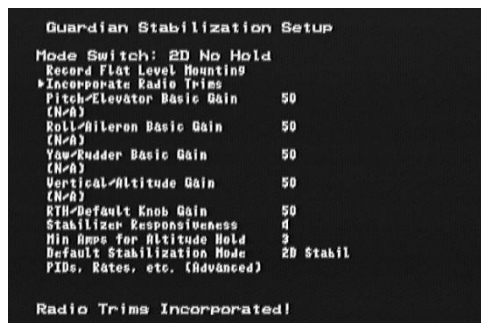
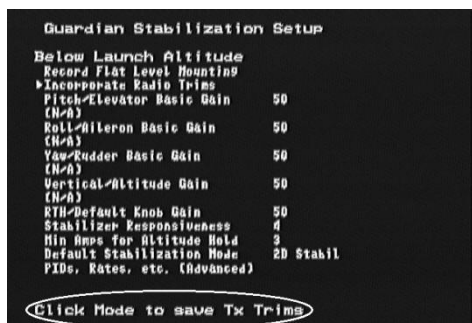
The incorporating of trims, will then give the Vector new trim centers, which will expand the “**RTH test**” deadband to encompass both trim setting points. This way the “**RTH test**” trigger can occur from both the new and old trims.

Note: If the RX failsafe is recorded again after the incorporation of trims....It will still be activated because it falls into the newly encompassed deadband range.

Even if the trims are not incorporated... “**RTH failsafe**” will still engage under an RX signal loss conditions even when “**RTH Test**” **will not**.... i.e. **Provided** your TX/RX failsafe and Wizard are configured properly and tested according to the - **RTH Ground Testing (signal loss failsafe)** section above.

Note: To incorporate trims, the mode switch must complete one full toggle forward then back again, to save the trims. The old way of moving the ailerons stick to the right to save them does not work anymore with the later firmware.

Once the toggle is complete - “Radio Trims Incorporated!” will appear as pictured.



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