

# How to get your JR XP9303 Heli TX to have 2 GeoLink GPS Features work perfectly!

## OVERVIEW AND PROBLEM BEING SOLVED as of Date 11/14/2018:

I have been seeking a solution for months on how to get the JR XP9303 Heli PWM Mode Transmitter to work properly and function with Spirit GeoLink GPS Module to achieve having at least 2 features that I felt were most important. The two features I have chosen to make work are Return to Home Feature, and Altitude Limit Hard Deck Rescue. I am happy to report that I have these two functions working now on 3 different Heli's now and tested and this method works perfect. I have to give Tomas the developer many thanks for thinking outside the box, and his recommendation worked, thanks Tomas for steering me in the right direction to achieve these goals. And in the end result is it works great so far, no issues at all. Outstanding Support! Thank you!

**DISCLAIMER:** Even though I have tested this solution on 3 heli's and have it working properly, you must understand that if this does not work for you for any reason, I will not be held liable or responsible, in any fashion. I can tell you this solution worked for me and I hope you will have the same results, if set up properly. I hope this helps you as well to be able to use your JR XP9303H.

## GOAL OF THIS DOCUMENT:

The intent of this document is to assist anyone who would like to make this work on their JR XP9303H transmitter a success, by providing a step by step set way to achieve your goals, without reinventing the wheel.

## PREQUISITES/FIRST THINGS FIRST:

- 1). Be sure to back up your current TX settings by hand writing them or copying the entire model number profile to another JR XP9303H TX to have as backup.
- 2). You must have your heli flying and perfectly setup for the Spirit Pro FBL Unit, and your GeoLink GPS Mounted per the latest manual updates from Spirit.
- 3). You must have at least Spirit Software and Firmware V2.5.2 at a minimum from this website: <http://spirit-system.com/download.php>

4). You must have at least GeoLink V1.0.2 Software and Firmware at a minimum from this website: <http://spirit-system.com/download.php>

5). All Spirit Manuals / Firmware / Documents are also at this same website: <http://spirit-system.com/download.php>

6). JR XP 9303 Heli Full Manual is located here: <http://www.iramericas.com/manuals/JRP9252-manual.pdf>

#### **NEXT CRITICAL STEPS BEFORE CONTINUING:**

1). You must ensure that your heli is set up as best as possible and it flies a-ok with the Spirit FBL unit, after setting up the Spirit FBL unit. **SAFETY IS ALWAYS A MUST WHEN FLYING AND BUILDING OUR HELI'S!!**

2). You must ensure that your GeoLink GPS Unit is mounted per the GeoLink documentation. Since the GeoLink GPS unit is shipped from Czech Republic, this means that your GeoLink **MUST** be calibrated and setup for your worldwide location, as stated per the GeoLink manual.

#### **LET'S GET STARTED PROGRAMMING THE JR XP9303H TRANSMITTER:**

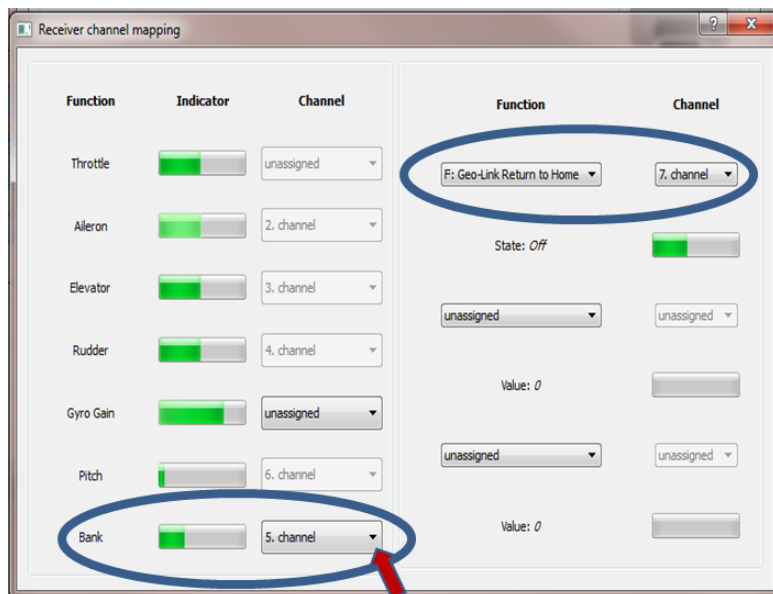
1). I highly recommend making a backup copy of the model you are going to update just in case something does not work right. Or, you can start with a new Model that has not been setup and then copy it over to the intended model.

2). You will need to decide how you want to setup which switch for each of the two functions I am going to walk us through. My choice was to have the right hand side LEVER AUX 4 be the lever that I use to activate ALTITUDE LIMIT HARD DECK RESCUE. And I use the GEAR SWITCH to activate RETURN TO HOME Feature. I wanted to easily be able to move the right side AUX4 Lever up with my right index finger after I am above the previously set hard deck altitude limit for rescue activation automatically. Also, I chose the GEAR SWITCH to activate Return to Home feature by flipping it forward easily with my left thumb. I start out flying with this switch towards me, so it is easy to flipping it backwards as mentioned to turn "RTH" activated. You may choose to do otherwise, but we are limited to two PWM channels right now as of this document. Note: You must setup your Return to Location spot for the heli to fly back to. I assume you know how to set the Return to Home location either using the GEOLINK Map and Setting home location there or by using negative gain on the TX until Setting

“Home” is accomplished at the field. If not please consult the Spirit manuals.

3). These next steps will be to program the JR XP9303 H heli to accomplish the above goals. Since the Spirit FBL unit is shipped with 3 Banks in order to achieve many features and bank settings, and we are using a PWM setup, when using Bank Switching it takes up a channel. Currently right now usually you will have Channel 5 set to BANKS leaving only one Channel 7 Available to assign a GeoLink function to it. So, what we need to do first is turn off bank switching for channel 5. **NOTE IMPORTANT**- By doing this, which is a must do for this to work here, you must be sure you can live without Bank Switching. Keep in mind now that the GeoLink GPS now automatically switches on and off itself by whether or not you go above the hard deck it knows to be off, and below the hard deck needs to be on, and this is taken care of in the GeoLink unit, to free up another channel. This is how we achieve the 2 channels. Now your saved \*.4DS file will only have 1 Bank, not 3, but it will give you an extra channel to use for programming the end goal described above. I never actually used Bank switching at all, so there was no loss here and a lot to gain.

How to Remove BANK SWITCHING and only have BANK 0 for this to work:  
Go into the Spirit Pro Screen, Receiver Channel Mapping and it will look similar to this screen:



Un-assign Channel 5 Bank.  
This frees up our 2<sup>nd</sup> TX Channel

Since we were using BANK switching with 3 banks available, we now only want 1 BANK, which will be BANK 0 and no others as they are not needed in this setup. You will typically see Channel 5 or Channel 7 set to Bank Switching; you will want to UNASSIGN that channel. We will be using the two free channels now channels 5 and 7 to setup our GeoLink Features later in this document.

**Note:** When you save the changes, you will only have one Bank that is needed.

So having done the above, let's get started programming the JR XP 9303 Heli TX!

A). Let's get to DeviceSEL screen by doing this:

- HOLD DOWN THE ENT BUTTON while turning on the power switch.
- Using the roller scroll over to the DeviceSEL and have it highlighted, then press the roller, this should show you the DeviceSEL settings that we will change.

Here is one example of a DEVICE SELECT screen looks like, **before we change it:**



**The Changes we will make to this section of the screen are on the right side.**

Look at the top right of the screen – You now see GEAR AUX2 AUX3 AUX4, this is correct for the top line just as is. You will need to scroll through to each setting using the roller to the values under the top line, then pressing the roller to edit that value. However, we now want to change the settings underneath the top right line to as Follows:

GEAR AUX2 AUX3 AUX4 is correct for the top right line. Change next 3 lines to:

GEAR AUX3 AUX2 AUX3 <=(Original default ok for this line)

SW LEV SW LEV <=(Change to these new values)

ACT ACT ACT ACT <=(Change all 4 values to ACT)

If everything above is finished and the right side of the display matches the above, then just press the ENT button on your TX to get back to the main screen.

**4). “Reverse Switch” Screen Change:**

Next, power on the TX as you would normally do with the power switch.

Press the LIST Button on the left side of the transmitter.

Scroll down to highlight the REV.SW, press the roller to open the menu.

Use the roller bar to highlight AX3 switch, and then make sure it is in the UP REV position. This is the reverse position for this switch.

Press ENT button to get back to main menu.

**5). TRAVEL ADJUST SCREEN Changes:**

Next, power on the TX as you would normally do with the power switch.

Press the LIST Button on the left side of the transmitter.

Scroll down to highlight the TRVL ADJ screen, press the roller to open the menu.

Change ONLY the following settings to these percentages as follows:

GEAR +100%    -11%

AUX2 +100%   -108% (Note: Move up/down the right hand TX Lever to adj)

AUX3 +150%   -100%

AUX4 +100%   -100% (Note: Move up/down the right hand TX Lever to adj)

Press ENT button to get back to main menu.

**6). Program Mix settings and changes, this is a little tricky but you will get the hang of it....**

Next, power on the TX as you would normally do with the power switch.

Press the LIST Button on the left side of the transmitter.

Scroll down to highlight each Program Mix Screen, and move the roller to PROG MIX 1 and press the Roller to open that mix. Do this for all PROG MIXES 1 through 6, MAKE SURE ALL ARE SET to INH in the [FUNC.LIST] Menu.

In the next section, we will be setting up PROG MIX1.

No other PROG Mixes 2 through 6 should be activated at all.

Next , Scroll Back to PROG MIX 1, Highlight it, & press the roller button to open NEXT, We will configure PROG MIX 1 only as follows:

This is just a little different as we are going to change a lot on this screen.

Under the top left of the words [PROG MIX1] should be there.

We want the end result MIX TO BE: AUX2 -> AUX4, to achieve this, select the first value by pressing the roller button to set the value on the left to AUX2.

Scroll over to the Mix target selection and make that AUX4 by pressing the roller selector and then choosing AUX4. You should now see this on the left side of the Screen as follows:

[PROG MIX1]

AUX2 ->AUX4

SW SELECT

EXP OFF

IN      OUT (numbers will vary based on stick position)

You should see the above when the left side of this screen looks like the above.

Next, we will need to setup the right side of this same screen which has Point-0 through Point-6. Next you will need to highlight each Point 0,1,2,3,4,5,6 with the roller, and change the values all to 0. When you are finished this is what you should see on the right side of the [PROG MIX1] screen:

Point-0    0

Point-1    0

Point-2    0

Point-3    0

Point-4    0

point-5    0

Point-6    0

Once this is completed with the values all set to 0, you will see a graph display on the right side of the screen with a solid straight line at points 0 through 6 on the bottom of the graph. This is correct. If you have achieved the above, this screen is complete.

**7). We will now proceed to make the changes in the Spirit Settings V2.5.2 to achieve having 2 channels programmed to Spirit Functions!**

**Start the Spirit Software making sure it is V2.5.2 or higher.**

**On the STABI TAB, for BANK 0, be sure to set the Function to Disabled.**

**On the GENERAL Tab, Click on the Channels Button to open the channels view. We are now going to set up our 2 Functions for Spirit GeoLink GPS Functions.**

**Ensure the BANK Channel is now showing “unassigned”. If not change it to unassigned.**

**Assign Channel 7 to Geo-Link Function “Return to Home”**

**Assign Channel 5 to Geo-Link Function “Altitude Limit”**

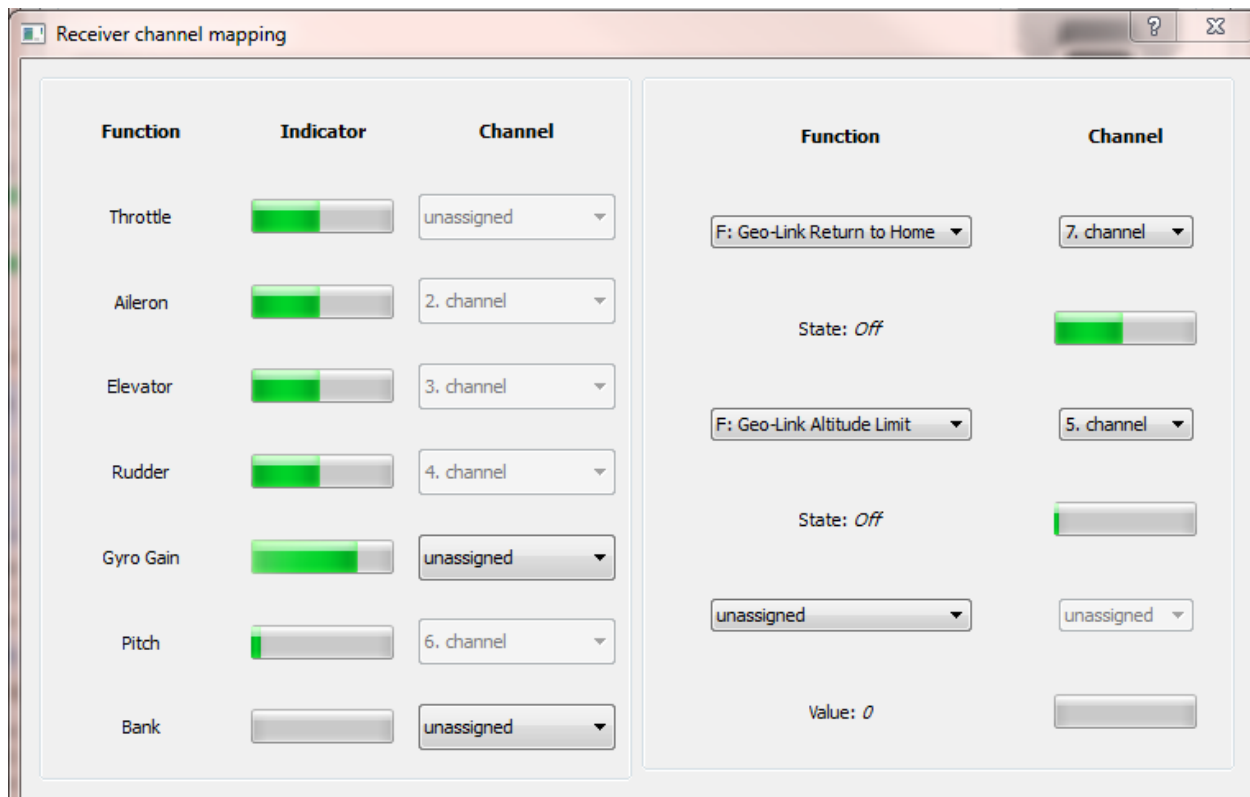
**At this point we can test the functions to see if they work properly.**

**Since the Gear switch (Channel 7) was programmed towards down, closest to us this should be Status: OFF.**

**When the Gear Switch (Channel 7) is flipped up or backwards, then the state changes to On indicating it is active, meaning the heli will “return to home” that you previously setup in the GeoLink Software, until you turn it off again.**

**When the right AUX Lever (Channel 5) is down all the way, this means the Altitude Limit Feature is not activated. This allows us to fly above the designated programmed amount of Meters high you specified as Hard Deck in the GeoLink software. Once above the hard deck height specified, you can then turn this on (Move the Right LEVER all the way UP) with no reaction of the heli until you fly lower than the hard deck altitude you set, which then the GeoLink GPS will automatically, without your input, rescue the heli and it will fly straight up until back above the hard deck altitude again, preventing a potential crash. Of course, when you are ready to land, you must lower the Right AUX Lever to its bottom position to turn the function OFF, allowing you to land safely with no hard deck activated.**

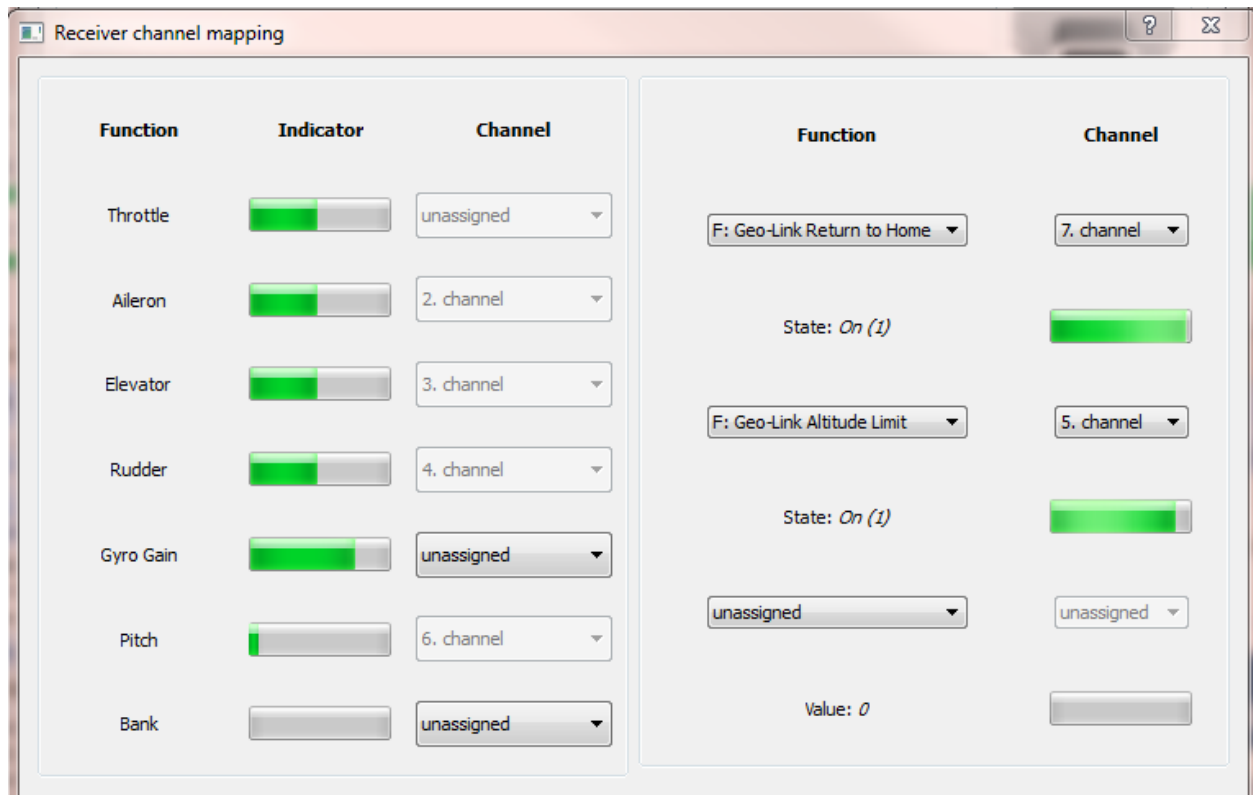
You can see these functions now working in the Spirit Software as follows, in this example both features are turned OFF as the Spirit Software shows here:



Be SURE to Save your settings you have done to by closing the Channels view and selecting the BACKUP TAB in the Spirit Software to save your settings keeping in mind now that you are only saving 1 Bank total, not multiple banks as before, since we have removed Bank Switching and reassigned the channel to Features you want to use. With this setup only two features can be setup and assigned like I have demonstrated above.

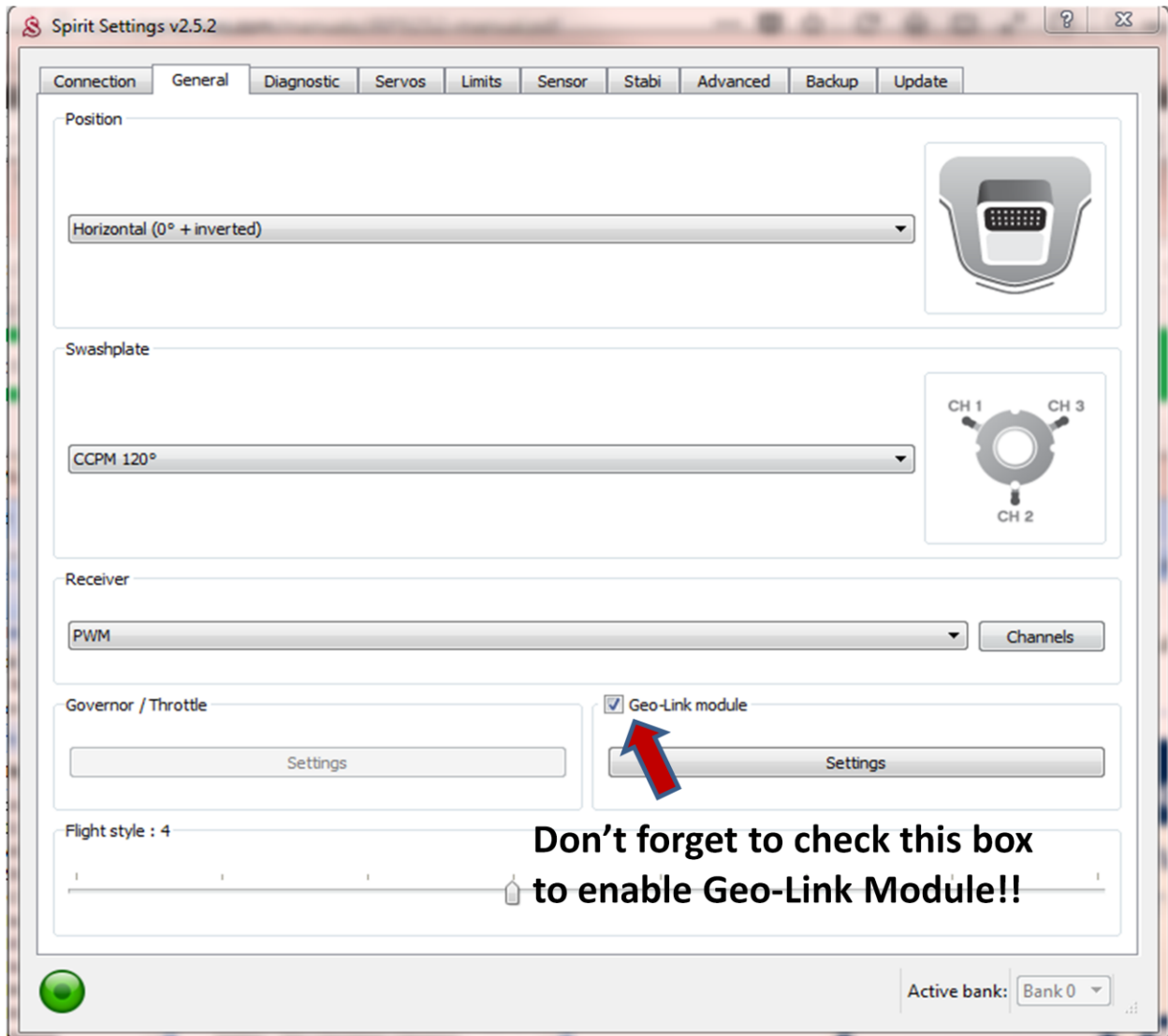


You can see these functions now working in the Spirit Software as follows, in this example both features are turned ON as the Spirit Software shows here:



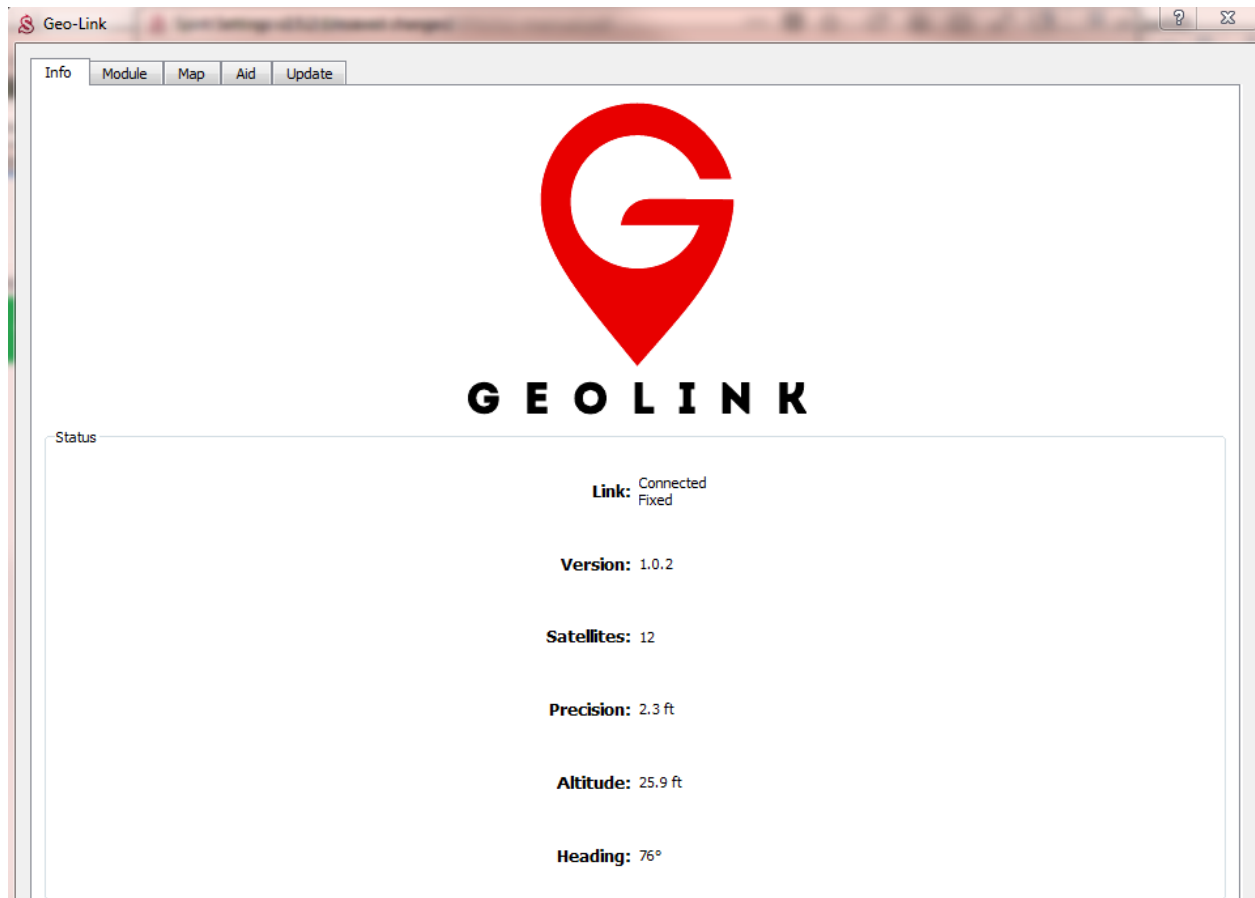
Next Click on the Spirit Software Tab “GENERAL”

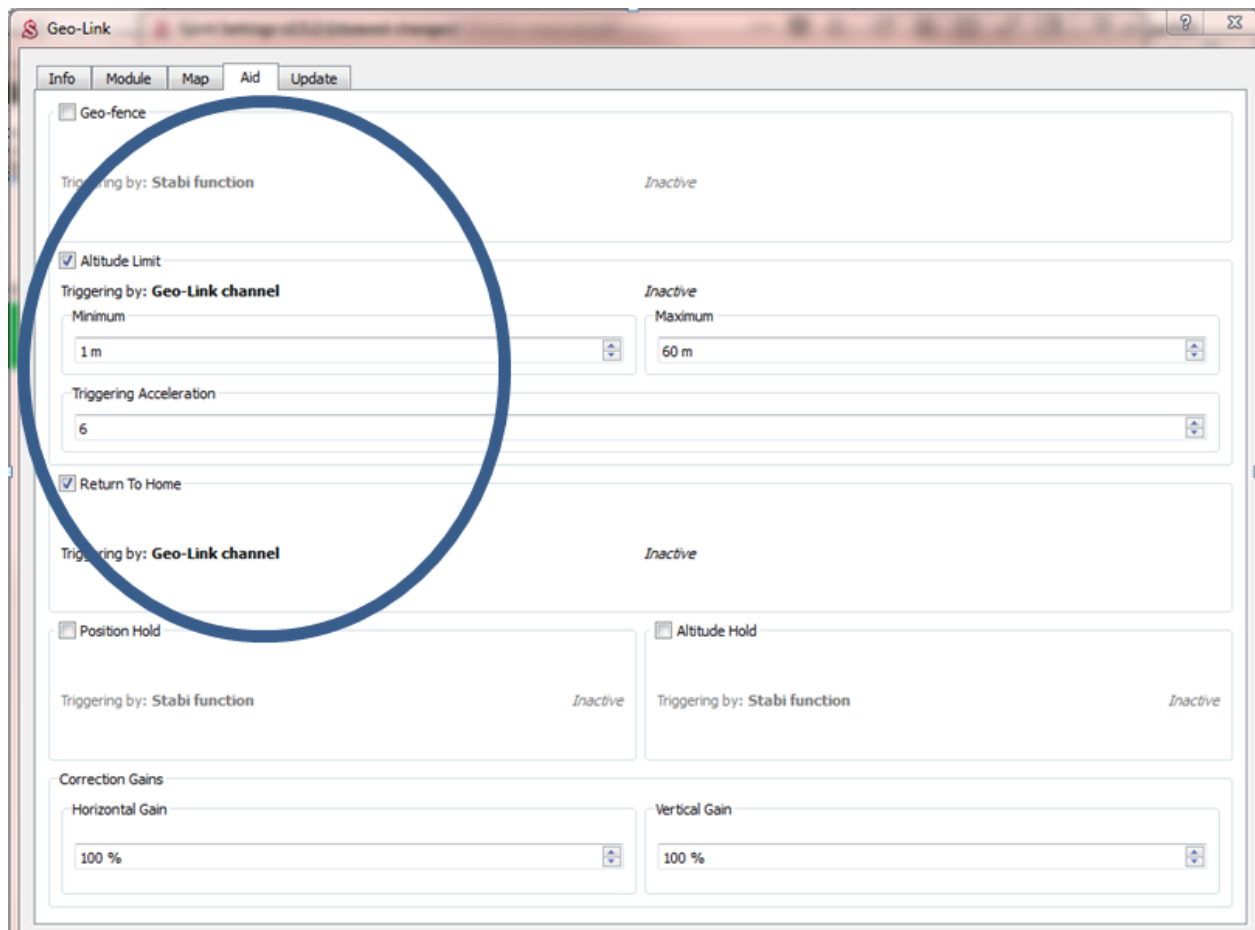
In this view **you must have your GeoLink Module with a checkmark** to enable this feature as shown below, **then click on the Settings Bar nearest the Geo-Link Module Box that is checked, this will open the Geo-Link settings:**



This is the Main Screen for the Geo-Link Module.

Next Click on the “AID” Tab





See next page for explanation of this graphic....

Be sure to enable the functions that you set up with your Transmitter on the tab above or they will not work. In this case “Altitude Limit” is checked and will work, as well as “Return to Home”. In this case a 1 Meter Altitude Hard deck is selected so that you can test the heli to ensure the Hard Deck Rescue works by ensuring **THROTTLE HOLD IS ON** then initializing the heli on the lowest spot you have near you, then move the heli up and down in the air being careful, so that when you raise the heli over your head, then the Altitude Limit will turn off if it is over the height of 1 meter, and below 1 meter, the swashplate should move up as it does in Rescue Mode.

When you engage “Return to home” feature, you first have to ensure you set a HOME location in the GEO-Link either in the Map you can set HOME, or with your Transmitter you can set it by your transmitter by going to the TRAV ADJ menu in the transmitter, and navigate to the GEAR Channel top right on your TX Screen, and with the gear switch towards you, notice the -11% is highlighted. Remember this number as we will want to set it back to this number after we assign home via the Transmitter GEAR Channel Negative Gain. Increase the Negative Gain to about -75% or more and you will see the swashplate move upwards at a slow rate then descending back down to indicate you manually set a home location for Geo-Link to go to when the Return to Home Gear switch is flipped backwards away from you. To turn it off, just flip the switch towards you. **NOW BE SURE TO RESET THE GEAR NEGATIVE VAUE BACK TO 11%** for it to work properly at the new home location.

Be sure to save your work by going to the **BACKUP TAB** in the Spirit Software!

You will need to turn off the heli and then turn it back on for these changes to take place, and saved, and you can test them as described above.

**Congratulations, if you got to this point, you did great!**

This concludes the necessary changes to the JR XP9303H transmitter settings for this purpose.

I hope these settings give you the same results as I achieved, and it is working perfect on 3 my heli's I have setup. Thanks! Dave

## **Notes that may be helpful for you in no particular order.....**

Remember to always wait for the GeoLink to finish recognizing all 12 Satellites and this will occur after powering on the heli and then the GeoLink will blue LED light will flash, and then it will be fully operational when the GeoLink blue light is on steady.

With THROTTLE HOLD engaged. Try Testing @ 1 meter with ALTITUDE LIMIT HARD DECK RESCUE function engaged to be sure things work. Power up the heli on the ground and then move the heli up and down from your feet to over your head and usually the GeoLink will kick in showing Hard Deck Rescue is engaged when low, and not engaged when high over your head. It is best to do this outside so GeoLink has all 12 satellites.

Setup uses the gear channel and aux channels 2,3, & 4.

You MUST fly above hard deck altitude limit specified by you BEFORE engaging Altitude Limit Hard Deck Feature.

You Must set HOME location before trying Return to Home Feature.

With THROTTLE HOLD engaged to prevent heli from starting up, you can set the home position at your flying location where you are. Simply go to "TRVL ADJ." setting in the JRXP9303H TX by adjusting the "GEAR" channel –Negative value from -11 to about -75 and you will see the swash plate slowly rise and then go back to where it was originally. This is confirmation that the HOME Location is set where to where your heli is sitting on the ground.

You can also set Home Position also through the GeoLink software on the Map tab. Simply open up the GeoLink Map tab, move the map with your mouse to your remote location you will be flying at, and then use the scroll up and down wheel on your mouse to zero in closely to exactly where you want to fly. The Click the "Set" button and then Left click your mouse and this sets a remote home location where you will be flying that day. Be sure to always check your home location before flying, as if it is set at a location you are not flying from, then you invoke Return to Home, the heli will go to the specified Home location.

I hope this document gives you informative information that is easy to use, and help you get your heli setup with your JR Transmitter XP9303 Heli version, with two GeoLink functions available.

Sincerely, Dave