

# FRAG: How to convert your RC Transmitter for independent control of Machine Gun and Cannon firing.

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**Caution:** Read this article completely before attempting any modification. If you do not understand the instruction or do not know how to use a soldering iron, “do not” attempt these modifications. Find someone who understands the modification to help you. FRAG accepts no liability for any damage or injury caused as a result of the application of this process.

**NOTE:** This modification has been successfully performed on many 75 MHz Futaba Skysport 4's. However, FRAG can not guarantee that a different transmitter or that a 2.4 GHz Transmitter will work the same, but it should, as long as the normal cannon and MG firing is by movement of the trim tabs.

## OVERVIEW OF MODIFICATION

Using 2 momentary Normally Open (N.O.) pushbutton switches, you will wire them in parallel with the top and bottom trim pots that are assigned to the cannon and machine gun.

**NOTE: If you do not fully understand exactly what you just read, STOP and get help!!!!**

## PARTS & TOOLS REQ'D TO MODIFY THE FUTABA SKYSPORT 4 TRANSMITTER

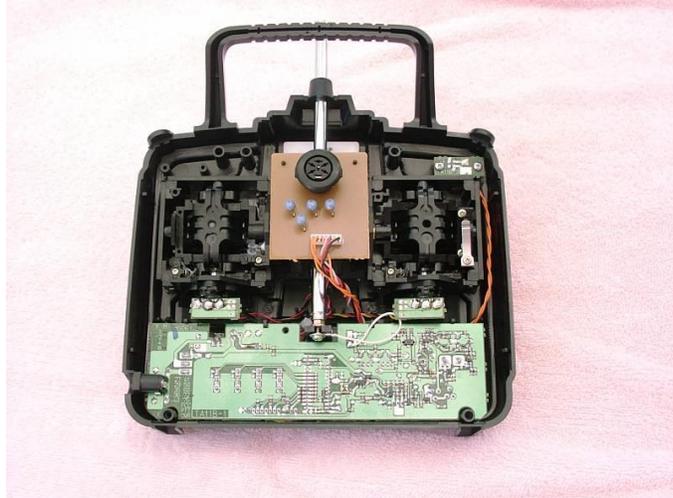
1. Radio Shack P / N 275-1547C – Qty of 2; N.O. Momentary pushbutton switches or equivalent thereto.



2. 4 pieces of 26AWG wire. Each piece about 11" long. The color does not matter. For clarity in describing this modification, red and green colors are used.
3. 17/64" (6.8mm) Drill bit
4. Soldering iron w/ fine tip

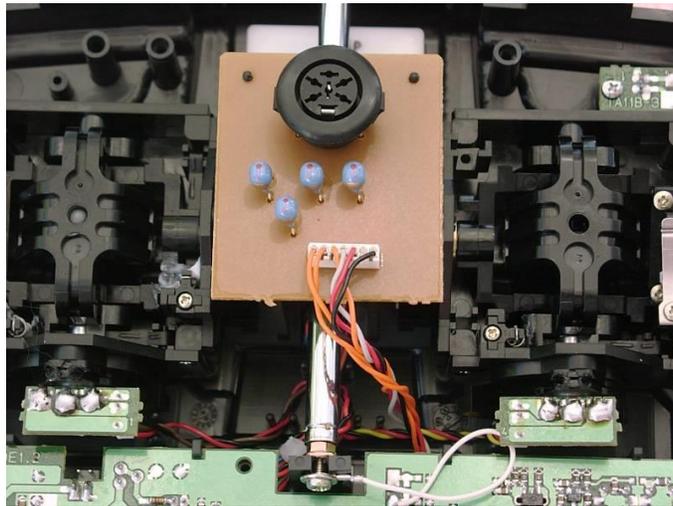
## PROCESS TO FOLLOW

STEP 1: Remove the 4 screws holding the back of the transmitter. Unplug the transmitter battery and swing the "transmitter back" out of the way.



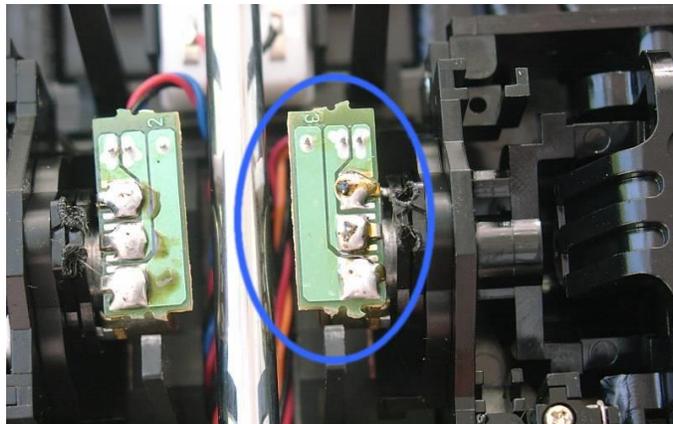
*Back of transmitter is off and trainer jack circuit board is still in place.*

STEP 2: Lift the trainer board off its mounting pegs and move it out of the way.



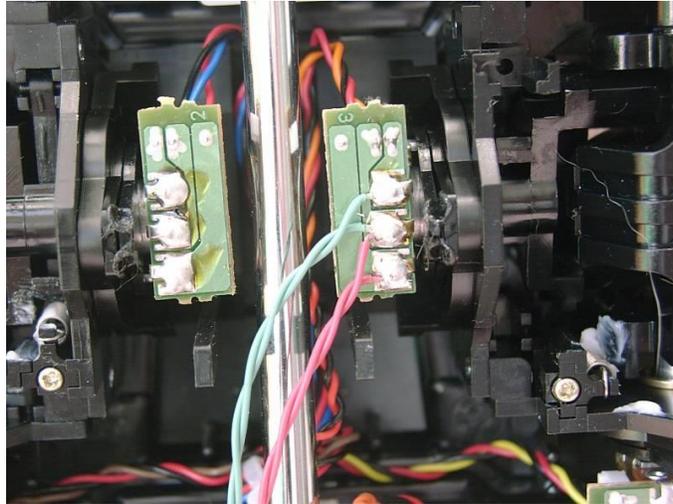
*Close-up of trainer jack circuit board.*

STEP 3: Locate the "trim pot" circuit board that you will be adding wires to. This is usually the one on the right as you look at the inside of the transmitter. If you assigned the gun function to a different trim pot, add the wires to that one instead.



*Close-up of trim pot circuit board without the added wires.*

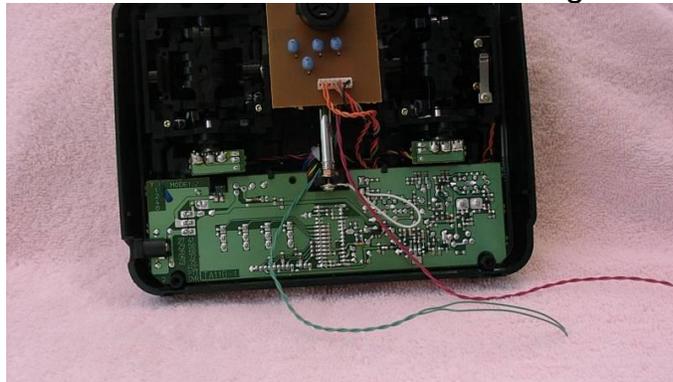
STEP 4: Solder the 4 wires to the trim pot circuit board as follows: Solder one to the top and one to the bottom. You will solder 2 wires to the center connection.



*Close-up of trim pot circuit board with the added wires. The red wires will connect to the machine gun switch and the green wires will go to the main cannon switch.*

STEP 5: Route the wires as shown in the pictures. Make sure that they do not interfere with any moving parts. Solder the wires to the momentary N.O. switches. Solder the cannon wires to the red button switch and the machine gun wires to the black button switch (NOTE: Some switches come with red and white buttons, so just substitute white for black). Each switch should get one of the wires soldered from the center trim pot contact and one from an end trim pot wire.

Reference the previous photo. One N.O. switch will get wired to the red wires. The other N.O. switch will go to the green wires.



*Transmitter with wires in place and trainer jack circuit board reinstalled.*

STEP 6: Before drilling the transmitter back, test the modifications you made. Move the 4 wires so that you have access to the N.O. switches outside of the transmitter with the back of the transmitter in place. Don't forget to plug in the transmitter battery. Place the trim tabs to the center position. With the tank powered on, momentarily press the machine gun switch ..... it should fire. Now press the main gun .... it should also fire.

STEP 7: If both guns fired, it is time to drill and mount the switches, so go to step 9. If either gun did not fire, go to step 8.

STEP 8: Troubleshooting:

STEP 8a: Check the wiring. Is anything shorting out? Is your solder joint properly made?

STEP 8b: Go back to the Tamiya Instruction book and perform the R/C alignment procedure. For the Tiger, it is step 23. This is where you were instructed to push the set button and move the sticks up/ down/ left/ right.

STEP 8c: If the buttons still do not work, have someone else look at your work. They may see something you do not.

STEP 8d: If you still can not get the firing buttons to work, remove the wires and put the transmitter back together. You are now back to the old way of firing the guns.

STEP 9: Congratulations, you are almost finished. Now look at the transmitter back. Notice the 2 mold marks on the inside top left and top right. We will be using these as our N.O. switch locators.



*Close-up of mold mark.*

STEP 10: Using a 17/64" (6.8mm) drill bit, drill a hole centered on each mold mark. Install the N.O. switches. FRAG usually places the red button so that it can be fired by your right hand. Put the transmitter back together (do not forget to connect the transmitter battery), make sure the wires are not binding or blocking a moving part inside the transmitter, and secure the 4 screws. Test your work once more.



STEP 11: Now, go play with your tank and enjoy an easier & quicker method for firing your guns!!