



## **Programming Guide for the JR X-378 for the Hangar 9 Ultra Stick**

To start with, plug your servos into the correct channels. Below is a listing of what servo to plug into each channel. You will need a 7-channel receiver to use the full set up that the 378 is capable of doing with the Ultra Stick. Center the arms on each servo to the exact center position with the arm perpendicular to the servo itself. Do this with each of the gimbals in the center and the rocker switches for the flap and aux 2 channels centered.

Ch. 1	Throttle	Ch. 5	Left Aileron (Listed as Gear Channel on Receiver)
Ch. 2	Right Aileron	Ch. 6	Right Flap (Listed as Aux 1 on Receiver)
Ch. 3	Elevator	Ch. 7	Left Flap (Listed as Aux 2 on Receiver)
Ch. 4	Rudder		

### **System Set-Up Mode**

To begin setting up the transmitter, press and hold the down and channel buttons together, and turn the 378 on, then release the down and channel keys. Press the down button until you get to MD\*, where \* is the current model number, with the word model blinking on the upper right hand side, and select the model you want the ultra stick on by pressing the + or – keys. Now press the down key until you see RESET. Then press the clear button to reset that model to factory defaults. Press the down key one time to get to the model type selection. Press the + key until the screen says GLID. Press the down key once to get to the model name screen. This will have the first character, M if you have not changed it, blinking to distinguish it from the model selection function. Name the model as desired, and use the 378 manual as a guide on how to do this. Press the down key twice and it will bring you to LEVRS screen. Press the – key and it will say FL+LS. Press the down key once to bring you to Wing selection. It will say V.TAIL at the top and OFF in the bottom. If this says ON, press the + key to turn this back OFF. Now press the channel key one time to select dual flaps. Now press the + key one time to make this say ON. You can now press the down key until you get to modulation selection which it will either say SPCM, PPM, or ZPCM. Match this to the receiver type you are using.

### **Function Mode**

Next we will set up the function mode of transmitter. If you are still in the system mode, just press the down and channel keys together twice, or turn the radio off and back on, and press the down and channel keys together again. This will get you into the function mode.

Set your servo reversing correctly so that each surface goes the correct direction. Do this by pressing the up key until you get to a screen that says REV. Press the channel key to change the channel being changed, and press the + or – keys to change the direction. If the flaps go up with the flap switch in the down or LAND position, reverse the direction of channel 6 (FLAP) and/or channel 7 (AUX 2).

Set your Dual Rates and Expo as you desire. Press the UP key to get to the dual rates, and press it once more to get to expo. Press the channel key to select the channel to be adjusted, and press the + or

– keys to adjust the values. Always use a positive value for expo, as a negative value will make the control response more sensitive around center and could cause you to over control the plane and crash. 30 percent expo on aileron, and 25% on elevator and rudder is recommended to start with. Set your low rates around 70% to start with, and change to your tastes.

Set the sub trims as required leveling the control surfaces. Press the UP key until you get to the sub trim screen. Press the channel key to select the channel to be adjusted, and press the + or – keys to adjust the values. Do try to keep these as close to zero as possible. Using too much sub trim can result in running out of travel on the servos, and the possibility of over-driving the servos.

Set the travel adjustments such that you get the control movements required. Consult your Ultra Stick manual for the required control surface travels. You may need to use 1” long servo arms to achieve the maximum travels listed in the manual. Try to use as high a travel adjustment value possible to achieve the throws so that you use as much of the servos travel as possible. Press the UP key until you get to the travel adjustment screen. Press the channel key to select the channel to be adjusted, and press the + or – keys to adjust the values.

To start setting up the advanced features of the Ultra Stick, we need to set up a mix to set the flaps correctly. You may notice at this time that the flaps are up with the switch up, level in the center position, and down with the switch in the land position. You will press the down key until you get to a screen that says INH 1 MIX. Press the + key until this says FLAP. Press the channel key, then press the + key until the second channel is flap. Press the channel key 3 times now and the screen should say OFFSET in the center. Push the flap rocker towards the negative mark until it stops at the full negative position, and put the flap switch in the down or LAND position. Now press clear. This should put a negative offset value, this radio says –171. Depending on the travel adjustments and a few other factors, this value may be slightly different. But the value is not crucial as long as it is a negative value. We will come back to this mix in a moment. Press the down key one time, and it should say L6 or L5 in the lower left hand side. Press the – key and make the screen say OFF. Now press the channel key and press the – key to make the screen say OFF again. Now by pressing the channel key it should go between L6 and L5 and both should say OFF. Press the flap rocker switch back toward the + and re-center it. Now we will go back to the mix we were setting up, do this by pressing the UP key. Now hit the channel key twice and an up arrow on the left side should be blinking. Push the flap switch to the full up position, away from the throttle stick. Now with your ultra stick on, with the flap servos set up, they should be deployed up. Press the – key until the flaps come back to center. If they move away from center, change from the – key to the + key. Now the flaps should be centered with the flap switch up, down flap in the center, and further down flap in the lower or LAND position.

### **Mixing Elevator to Flap**

Press the DOWN key until the screen says ELEV with an arrow pointing to FLAP. Press the channel key one time, and press the – key until this says MIX. This will put the elevator to flap mixing on the mix switch. Just like the 8103 instructions in the Ultra Stick manual state, you can put this on a couple different switches on the 378. Now press the channel key again to take you back to the rate set up. Pull the mix switch towards you; this is the upper right hand switch. Now press the + key while holding up elevator until you get to about 35 percent. If the flaps go up, reverse the value from +35 to –35. Now push down elevator, and press the + key to 35. If the flaps go down, reverse the value from +35 to –35. This will give you flaps mixed to the elevator for tight loops, etc.

### **Mixing Aileron to Flap**

Press the up key one time and the screen should say AILE with an arrow pointing at FLAP. Now you will press the channel key once, and then press the – key until the screen says MIX just like the elevator to flap mix. You can change to a different switch selection if you would prefer a different one. Now you will press the channel key once to return to the mix. Pull the mix switch towards you; this is the upper right hand switch. Now press the – key until you get to –100%. Reverse this to +100% if the flaps are not moving in the same direction as the ailerons. This will make the flaps move as ailerons for rapid rolls etc.

### **Mixing Flap to Elevator**

Press the up key until you get to a screen saying FLAP with an arrow pointing at ELEV. Press the channel key once to get to switch selection. Press the – key until the screen says FLP-D. Now press the channel key twice to return to the main mix screen. Put the flap switch in the LAND position, or CROW position in our set-up. Press the + key until your elevator goes down a ¼”. If they go up, press the – key to reverse this. This is done to prevent the nose from going up with crow deployed. When flight testing the Ultra Stick, adjust the value as required to maintain level flight with crow.

### **Setting up Crow, Flap to Aileron Mixing**

Press the up key once and it should bring you to a screen saying FLAP with an arrow pointing at AILE. Press the channel key once to get to switch selection. Press the – key until the screen says FLP-D. Press the channel key twice to return to the main mix screen. Put the flap switch in the LAND or CROW position. Now press the – key until both ailerons go up ¾”. If they are going down, press the + key instead to reverse this.