



Programming Guide for the JR 10X radio system

The following is a programming example for a plane using 2 elevator servos, the second servo plugged into aux 3 or channel 8, 2 aileron servos, the second aileron plugged into the aux 1 or channel 6, using spoilers for harriers and elevators. Also there will be 2 channels used for rudder, channel 7 or aux 2 being the second channel. Keep in mind that any advise is for maximum control surface throw, and should only be used by well-experienced pilots. If you follow along, several features of the 10X will be demonstrated, which should help better understand the abilities of the system. I will use the code numbers to use in this guide, but keep in mind that you can press D.LIST at the input screen and scroll through all the choices without knowing the code numbers.

Model Selection and Initial Set-Up

To start with we will open a clear model, so turn the system on, and hit enter. Put in your security code if you have entered one. Go to code 84, which is model selection. Use the arrows at the bottom of the screen to select the model number, and choose a clear model. After selecting the clear model, press enter, and go to code 28. Press clear so that the system will be in factory default settings. Press enter, and then go to code 85. Here you will select the modulation to match the receiver you are using. Press the select key to choose the modulation type. Press the up key to select the modulation of the system. Now press enter again and go to code 17. This is not necessary for all set-ups, but I would recommend inhibiting all functions in code 17. Now you will press select to move the selection arrow, and press clear to make each one say INH. Now press enter and go to code 22. Press SEL under NORMAL once and it should say FLAPERON. Press the select under the TAIL twice, and it should say D/ELEV.

At this point we have set up the basics of the set-up for our plane done. One important thing to note is the flaperon set up that we put into the wing type selection. This feature mixes the aileron channel with the aux 1 or channel six, so that they will both work as ailerons, and we can set them up to work as flaps as well. Plug the right aileron in to channel 2 and the left into channel 6. Also with the D/ELEV set up, this will mix the elevator to aux 3 or channel 8 to use for a dual elevator set up. Plug the right elevator into channel 3 and left elevator into channel 8.

Dual Rate and Exponential Set-Up

Press the enter key and go to code 13. Press the page key to select the channel, and the + and – keys to set the rates. I would set up the high rate at 100%, between 70% and 80% for mid rate, and the low rate between 50% and 60%. Also set up the expo here, I use around 50% expo on high rate elevator and aileron and between 20% and 50% on high rate rudder. I would use around 20% to 30% on low rate elevator and aileron, and 10% to 15% on low rate aileron. Use something between these for middle rate. You will need to adjust this for your own preferences.

Travel Adjustment

Press enter and go to code 12. Your manual gives a good description of how to adjust these. Press the page key to get to the second set of 5 channels for adjusting the travel. For a full 3D plane, I would set the travel adjustments to 150% on the control surface channels including aux 1, aux 2, and aux 3. The aux 1 channel will be labeled flap in the travel adjustment screen. This will help enable the large control surface throws using the highest mechanical advantage possible, as you are using the full movement of the servo. Then set your distances out on the servo arm to the linkage as small as possible and the control horn to the linkage to as large as possible, and still maintain 40 to 45 degrees travel on the surfaces. Use as high travel adjustment values you can without causing any binding. Follow the planes recommendations for the linkage set up. This is very crucial, as an incorrect set up will lead to flutter.

Aileron Differential

Press enter and go to code 22 again. This is where you will set-up the differential in the ailerons. You will use this to help the plane roll more axially. This feature makes the aileron go further up, than down. This is necessary due to differences in lift and drag generated by the up and down going ailerons, creating a yawing moment on the plane. Having the up going aileron going further up than down, minimizes the effect. The amount required will vary plane by plane. If the manual for the plane gives a guideline for the amount of differential follow it. If it does not give a guideline, start out with 5% to 10%, and adjust after flying to improve the roll characteristics.

Rudder Set Up

Press enter and go to code 51. Press 4, then 7 and hit enter. Press the + key until it says 100% on the rate being adjusted. Then move the rudder stick to make the shaded area move the rate that is still 0%. While holding the rudder stick in this position, press the + key and make it say 100% also.

At this point, we have a fully functional set-up, but there are still lots of features you can add. You will of course need to set up your sub trims, servo reversing, and travel adjustments as required. Keep in mind that the lower sub trim value you use, for the most part, the better off you will be when trying to use large travels. If you use too much sub trim, your servos will reach the end of their movement before the surface moves very far in one direction.

Flaperon/Spoileron Set-Up

For a 3D set-up, we will set up the spoilerons. One good way to set up the spoilerons for harriers and elevator maneuvers, is to mix elevator to flap. An easy way to do this mix is with the elevator flap mix, which will work with the flap switch. Press the enter key and go to code 63. This will set it up so that they will work with the flap mix switch in the up position. Just flip the switch up, push down elevator, and press the + key and both ailerons both go down. If they go up, press the turn key. I use 100% in this mix to help keep the wings from rocking in an elevator or harrier. Now pull up elevator and press the + key until with the up elevator, both ailerons go up. If they go down, press the turn key. Again, I use 100% here. If you would like to have this on a different switch, or would like to have this function work with the spoilerons be active with the switch in the down or LAND position, follow the

mix below. Leave code 63 with zero values. Go to code 52. Press 3, then 6 and hit enter. Now press the page key once and choose the switch you would like to use. Press the select key under the switch you choose to activate it. For example you could press select under LD, and the mix will be active with the flap switch in the land position. Next, you will press the page key twice to get to the main mix screen. Put the switch you chose in the position you wan the mix to be active, and pull up elevator, and make the value 100% with the + key. Now push down elevator, and make the value 100% again. This should make the ailerons go up with up elevator and vice versa. If they go opposite of this, press turn on both rates and move the elevator stick to move between the 2. This will change the value from + to – in the rates. Of course if you want to set-up flaperons instead of spoilerons you would make the ailerons go down with up elevator and vice versa.

Smoke system Set-Up

Another option that can be used is a smoke system. An easy set up for an electronic smoke system if one is to be used, is to plug the smoke into the gear channel and use the gear switch to turn it on and off. Another way to do this would be to use another channel, 9 or 10, and use a mix to put it on the switch of your choice. For example, press enter and go to code 53. Press 9 twice, and then press enter. Press page to select the switch you would like to use. Now we will need to set an offset in order to make this work correctly. Press enter, and go to code 17. Now press select to move the arrow to aux 4. Press the ACT key to temporarily re-activate the channel 9 or aux 4 knob. Now press enter and go back to code 53. Move the aux 4 knob, on the front right hand side, all the way one direction. Press STORE under offset. Now we will press enter and go back to code 17. Inhibit the aux 4 knob again. Now press enter, and go back to code 53. Move the switch you selected into the position you want the smoke to be active. Press the + key to you get to 100%. This should set it up, but if it does not work correctly, you can try pressing turn on the mix rate. Hopefully at this point it works correctly, but it all depends on your set up. If this does not work you will need to go back and redo the offset by activating aux 4 in code 17, turning the aux 4 knob in the opposite direction, pressing store, then going back to code 17 and inhibit aux 4 once again. Then if it doesn't work correctly, go back to code 53 and press turn on the rate.

Knife Edge mixing

Many aerobatic planes require some elevator and aileron correction to keep knife-edge maneuvers straight. The easiest way of doing this is to go to code 64 and enter the values in the pos0 column in both directions. Start out with small values and increase them until in flight the plane tracks straight. Press page to put in the elevator values. Good starting points for the percentage of the mix is around 8% – 10% for the elevator and increase or decrease the value as necessary. Usually the amount required for aileron correction is less, and will be closer to 5% or under for most planes. If the elevator or ailerons correct in the wrong direction, reverse the values.

Sometimes however this is not very helpful as some planes have a tendency to progressively require more compensation the more rudder you give, and the straight curve used in code 64 doesn't provide enough compensation. Other times you may need a little up elevator compensation near center stick, and then down elevator as you move away from the center. The best way to solve this is to use a multi-point mix (codes 56-58) instead of code 64. Go to code 56, and press 4, then 3. This will mix rudder to elevator. Press SEL under type norm to change it to curv. Then press enter. You will now come up to the main mix screen. As you move the rudder stick you will see the vertical line move from the center each direction. Along it's movement; you will see the screen say store in the bottom center of

the screen. When you press store, this puts a new point at that stick location that you can use to independently adjust from the other points. To adjust it, just go to that point with the rudder stick, and press the + or – key to adjust the value. Just do this to set up a curve along the entire stick movement. Press SEL under EXP and it will put a curve to the line instead of being a straight line, and it will smooth out the response you will get. You will need to adjust this curve until knife-edge flight tracks straight.

I hope this clears up some questions you have in programming the 10X. There are a lot of things you can do to add and change to the above examples to customize it the set up to you taste. While the examples given may not be used in your case, they should show you how to use the features of the radio to your benefit.