9ZAP PROGRAMMING 101.

For the purposes of this article, you need to follow along by actually programming your radio. Before beginning, select a new (unprogrammed) model so that you won't mess up anything by trying out what I suggest. Also, don't forget to go back to your old model setup after trying this out! Double check this before flying, PLEASE. Also, you can save the batteries by holding down the R key while turning on the radio. This allows you to go into programming without actually generating any RF output.

THROTTLE TRIM LEVER. The 9ZAP has digital trims, which I have grown to love. However, I still like to have an analog trim lever for throttle. So, here is how to program the left side slider to act as a throttle trim. (I chose that one since it is the easiest to operate without having to take your thumb off the stick).

The 9ZAP uses soft function keys, with key labels being shown on the LCD screen. Whenever possible, I will refer to the keys by the label shown on the screen. In some cases I will refer to the keys by the actual key letter (A through R) by bracketing the letter with <>, ie: <A> refers to the top left key.

First, from the home screen, go into the Model Menu screen by pressing the MDL function key. Select the THR function by pressing the <C> and <L> keys. Press the ACT function key to activate the Throttle Curve feature. Then, press END to return to the Model Menu.

Press the CND function key to enter the Condition Menu. Select the TCV menu by pressing the <D> and <K> keys. This screen allows you to program 13 different points on the throttle curve so you can make your engine respond any way you want for a given stick position. However, for now we will only deal with getting the left slider to act as a throttle trim.

In the THR Curve menu, press the VOL function key. You will see a screen that has all the auxiliary knobs, and for this demonstration we will select the left slider by pressing the <F> key. (At this time you will notice a +/- function key on the far right of the screen, this allows you to reverse the operation of the left slider if you so desire.) Now press the PRE function key to return to the THR Curve menu. You can now operate the left slider and watch the bottom of the throttle curve move up and down in the graph. If you want to adjust the bottom end of the throttle range up/down, you can do so by pressing the <D> key, and then the + or - keys to adjust the percentage. If you leave the number at 100%, only half of the left slider travel will have any effect. Setting it to 85% will allow all of the slider travel to have an effect. I left mine at 100% since it allows the engine to idle a little fast but still kill the engine when pulled all the way back. You can exit the programming screen by pressing END and HOM.

To verify your program change is working properly (without having your airplane nearby) simply press the SYS function key and select the SRV menu. This is a bargraph

pictorial of the servo positions, and allows you to quickly check if your change is having the desired effect. I use it a lot!

AUTO DUAL RATE RUDDER. Auto DR rudder allows you to use the throttle stick position to automatically go to high rate rudder for stall turns. I will describe two ways to do this. The first way is how Futaba intended it to be done (it works well). The second is how I do it (it works BETTER).

From the Home menu, press the CND function key to get to the Condition Menu. Then press the <B> and <H> keys to get to the Dual Rate selection screen. Here you can select three different circuits (A, B, or C) and rudder is normally associated with C, so press that key. In the D/R C screen, press the ACT function key to activate it. Then, press the SWT key on the far right of the screen. If you get a screen showing switches instead of sticks, press the STK function key. Then, press the <C> key to select the throttle stick. Move the throttle stick to mid position, and press the SET function key. Exit by pressing the PRE function key and then the END function key twice. Now go to the servo test screen by pressing SYS and select SRV. Move the rudder all the way to one side and while holding it there, operate the throttle. You should see the rudder throw increase at some point below half throttle. Viola!

The problem with this setup is that you can't use a switch to activate/deactivate the auto D/R function unless you use a condition, and I can't see using a condition just for this. Also, if you happen to be jockeying the throttle around at the cutoff point, you can get some pretty large rudder changes that don't look very pretty. So, I came up with a slick way of doing it using mixers, with the side benefit of allowing a smooth transition from high to low rate. So, here goes.

First, disable the D/R C setup by going into D/R again, and pressing the INH function key to inhibit it. Go back to the Home screen. Now, press the CND function key, press the <B> and <I> keys to get into the programmable mixer menu. I will use mixer 5 for this demo, so select 5. Going down the left side of the screen, make sure the mode is ACTIVE, the master channel is RUD, the slave is RUD, and the mix type is CTL. On the right side of the screen, make sure the trim is INHIBIT and the master mix mode is UNMIXED. Now, press the SWT key, and pick the switch you want to use to enable/disable this function. Also, select which side of the switch you want to use to activate it. One side of the switch should be ON and the other side OFF. Return to the previous screen by pressing PRE. Now press the NXT key and you will see a bargraph. Press the <A> key and then select the THR as the control channel. Before I go further, let me say now that THIS GRAPH IS BACKWARDS. Wherever the moving arrow is on the bottom of the graph, it should be on the other side. One of the first bugs I found in this radio! Ok, now lets program the dual rate amounts. First, press the <B> key and make sure you are at point 1 by pressing the PT-> and <-PT keys. At point one, press 0 or the <I> key. Go to points 2, 3, 4 and do the same thing. At point 5, enter 10 percent by pressing the <I> key, and then pressing the <G> key until you reach 10, and make sure there is a plus sign in front of it by pressing the <F> key. For the rest of the points, enter a +20. In the bargraph you should see a line starting low on the right side, then ramping

up to the middle at the center of the graph. Once this is done, exit to the Condition menu by pressing END three times.

What this does is to mix the rudder into the rudder in such a way to decrease the throw when the mix is on. The rudder throw for high rate should be programmed using the ATV and AFR functions. When you flip the switch to disable this mix, you will be left with high-rate rudder throw. Enable the mix and you have auto D/R.

Go to the SRV screen again to check out your programming job. With the switch flipped to enable the function, move the rudder to one side and hold it there. Now operate the throttle up and down, and what you should see is a decrease in rudder throw at full throttle, with a gradual increase in rudder throw as the throttle comes down to the center position. This function can be disabled (high rate only) by flipping the switch that was programmed to do so. The percentages and the points on the curve can be adjusted to get the desired effect. Nifty, huh!

I have used this mode of mixing to do some wild things, such as programming special amounts of control throws for snaps when using sticks. But, I will save that for a later column.

I hope I got all the keystrokes right. I tried to follow along with my radio while I was typing this, but it was late and I was tired so I may have goofed somewhere. Give me a call or send me email if you have any questions.

I may be getting a Futaba 8UAF on loan so I can play with it some, and come up with some programming tips. Stay tuned.