

Programming the JR XP8103 Radio



For an Electric-Powered, Six-Servo Sailplane

by Miami Mike

The [JR XP8103 Owner's Manual](#) describes the proper way to program a six-servo sailplane to achieve the flap, reflex, and variable crow functions. However, this programming procedure was intended for a pure sailplane with no motor. The variable crow function makes use of the throttle stick, which becomes a "spoiler" stick when the XP8103 is set for glider. If your plane has an electric motor, you need the throttle stick to control it, so the JR recommended programming method described in the manual doesn't work.

One possible solution is offered in the [Ultra Stick .60 Instruction Manual](#). The Ultra Stick is not a sailplane, but if you scan down to pages 62 through 67 of the manual you'll see a method described that could be applied to one. However, this method has some drawbacks:

- Reflex is not available.
- Crow is not variable. It's activated by pulling the flap mixing switch down to what was meant to be the "launch" position, so crow is either on or off.
- The intended functions of the flap mixing switch are changed:
 - The up position, which was meant to be reflex, becomes flaps off.
 - The center position, which was meant to be flaps off, becomes flaps down.
 - The down position, which was meant to be flaps down, becomes crow.
- Since the flap to aileron mixing function is used to achieve this somewhat artificial version of crow, with ailerons moving in the opposite direction as flaps, flap to aileron mixing can't be used as intended, with flaps and ailerons moving in the same direction.

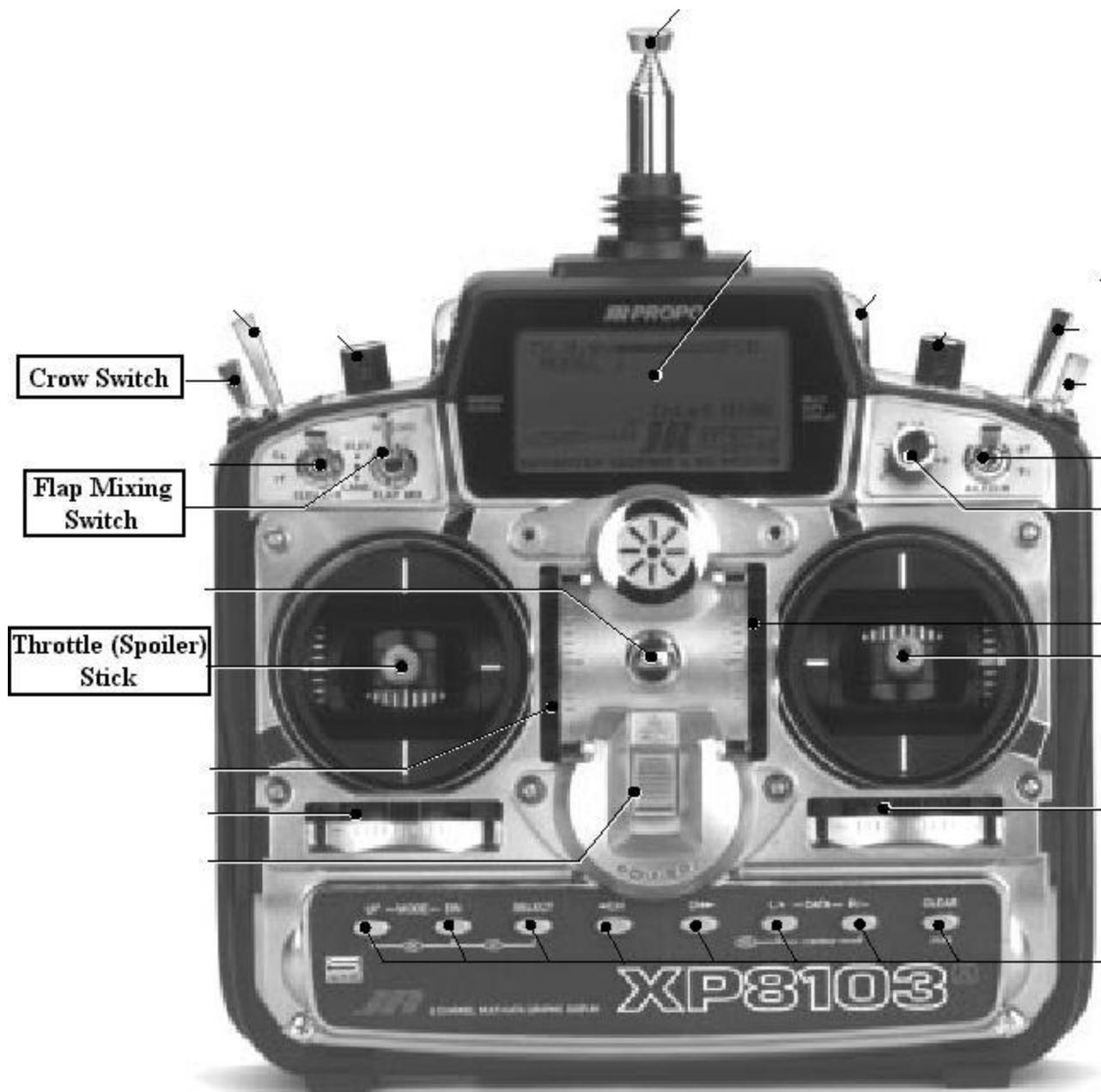
The following is a programming method that solves these problems. With this method:

- The flap mixing switch will operate as intended.
- All mixing functions will be available for normal use.
- Crow will be variable using the throttle stick.
- Motor control will also be available using the throttle stick.
- With the flip of a switch, the motor can be safely disabled for range checks and other operations where it would be undesirable for the motor to accidentally start.

How it Works

The CROW switch will select the function of the throttle stick. With the CROW switch down (back and away from you) the throttle stick will operate the motor. With the CROW switch up (toward you) the motor will be disabled and the throttle stick will operate the variable crow function. It's assumed that you would never use crow and the motor at the same time.

Important Note: The CROW switch could be programmed to work in the opposite way, but **this is not a good idea**. It's very easy to accidentally bump the switch down during a hand launch, which would disable the motor at a very bad time. It's highly recommended that you program the radio so that the motor operates with the CROW switch down and crow operates with the CROW switch up.



Programming Procedure

Please refer to the [XP8103 Owner's Manual](#), specifically the bottom of page 121, "4.11 Butterfly Mixing (Crow) (Function Mode)". Under "Setting Mixing Value", the manual says, "The mixing values can be set to two different settings by utilizing the butterfly switch." For this procedure only the "0:" setting will be used. The other setting, "1:", which represents the CROW (butterfly) switch down position where the motor will be enabled, will have all servos set to their default value of 0%.

Configuring Crow to Operate When the CROW Switch is Up

- With the proper model selected, or better yet, with a copy of the proper model selected, (See "3.5 Copy Select Function" on page 107 of the manual,) press DN and SELECT to enter the function menu.
- Use the UP and DN buttons to select "Butterfly".
- Press UP and DN together to access the Butterfly function.
- Put the CROW switch in the up position. The arrow will point to one of the "0:" settings.
- Using the CH buttons, select the "0:" settings for "SPOI->ELEV", "SPOI->AILE", and "SPOI->FLAP", and adjust each setting with the DATA buttons to achieve full crow with the throttle stick in the up position.
- Use the CH buttons to select "SPOI Offset".
- Move the throttle stick to the down position and press CLEAR to set the spoiler offset to about "-175". (See note below.)
- Make sure that the "1:" value for each of these three settings is set to 0%. If necessary,
 - Put the CROW switch in the down position.
 - Select each setting using the CH buttons.
 - Zero each with the CLEAR button.

Disabling the Spoiler Channel (Motor) When the CROW Switch is in the Up Position

Mixing with the XP8103 is additive. The trick here is to effectively mix the spoiler channel with itself such that the added mixing exactly cancels the original stick movement, thus disabling the channel.

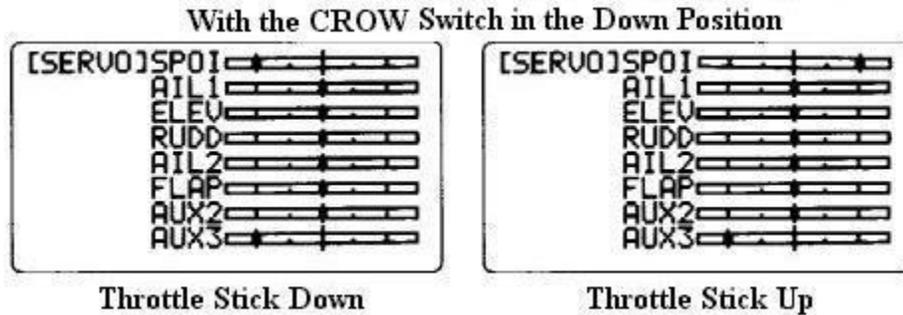
- Press DN and SELECT together to enter the function menu again.
- Use the UP and DN buttons to select "PROG.Mix3".
- Press the UP and DN buttons together to access the "PROG.Mix3" mode.
- You should see "INH". Use one of the DATA buttons to enable that mode.
- Using the SELECT button to select each function,
 - Set the first line under "PROG.Mix3" to "SPOI->SPOI" if it's not set that way already.
 - Set both of the "Rate:" functions to "-100%".
 - Set "SW:" to "BTFY0". The word "OFF" should appear with the CROW switch down and should disappear with the CROW switch up.
 - Select "OFFSET", and with the throttle stick down, press CLEAR to set the offset to about "-175". (See note below.)

Note: You may experience difficulty if your throttle trim is not centered. (Thanks, "RapidRaptor".)

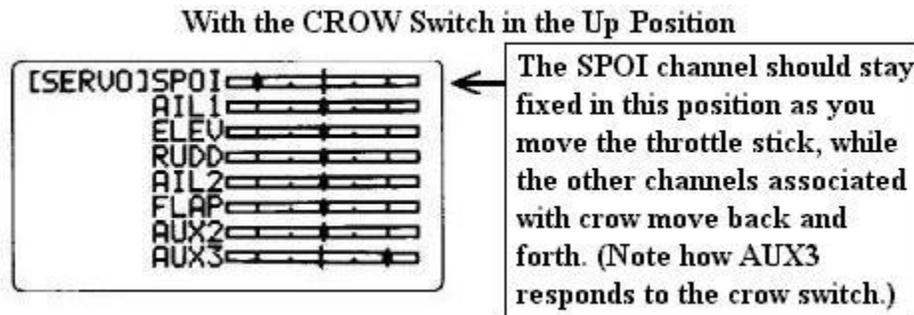
Testing

- Press DN and SELECT together to enter the function menu again.
- Use the UP and DN buttons to select "MONIT".

- Press UP and DN together to access that function.
- With the CROW switch down, the throttle stick should move the "SPOI" channel indicator between the two positions shown, and no other channel indicators should move. The positions of the other channel indicators will depend upon your servo installation and will not necessarily be as shown below.



- With the CROW switch up, the "AIL1", "ELEV", "AIL2", "FLAP", and "AUX2" channels should all move back and forth as you move the throttle stick, but the "SPOI" channel should remain fixed in the position shown below, disabling the motor.



- Test with the plane turned on. Make sure the motor and servos work exactly as they should.