Four Servo Elevon Mixing with Y-Cable

On the Hercules, we have split the elevons in half, making four small elevons for the following reasons:

1. We want the aileron or roll movement only on the wingtips where it is the most effective and doesn't destabilize the wing and cause increased drag.

2. We want elevator movement across the entire wing so that the wing does not have any "dead areas" without reflex on the elevons.

If you have a different radio than the DX6i, you may have a different programming sequence, but this will hopefully give you the concepts you need. The goal is for all of the surfaces move up and down together for elevator, while only the tips will move for ailerons.

Below the instructions are a couple commonly asked questions about the Hercules and the four-servo setup.

Install the four elevon servos in the wing

1. Install each servo close to the center of each of the elevon they will control.
2. Make sure they are close enough that the push rods will reach the servo horn on the flap.
3. Do not mount servos directly behind the motor where split rudders may be installed.
4. Servo arms should point sideways, towards the wingtips, except for the R center elevator.
5. Connect the 2 inside servos with a "Y" connector.
6. Add servo extension wires as needed so the outside servos can reach the receiver.

Plug the servos into the receiver in the following order.

1. R tip elevon is plugged into the receiver's #6 slot that may be called Aux #1 or Flap
2. L tip elevon is plugged into the aileron slot.
3. R mid elevator and L mid elevator are Y-connected together and plugged into the elevator slot.
4. The elevator servo arms have to be on opposite sides of the servos to move properly. (I have my L mid servo arm aimed in and all the rest of the arms aimed out.)

On your Spektrum radio, go into Wing Tail Mix

Dual aileron: Activated
V-Tail: Inhibit
Elevon: Inhibit

Go to Mix 1

Scroll and set the the options as follows:
Elevator + Flap: Activated
Rate: D +100% U +100%

SW: ON / Trim: Activated

Go into Reverse (Servo Reversing)

Throttle: Normal Aileron: Reversed
Elevator: Normal Rudder: Normal
Gear: Normal Flap: Reversed

Go into Travel Adjustment
The servos will move different amounts because of the mixing. This is how I tuned mine so that they all moved the way I wanted. *You may need to tune your radio differently.* The aileron and elevator adjust normally but the flaps adjusts the "up" when you move the R transmitter stick to the side and "down" when you move it up/down

Aileron Left: 75% Aileron Right: 70%
Elevator Up: 60% Elevator Down: 50%
Flap Up: 90% Flap Down: 70%

Questions about this setup

1. Can the plane can be flown with a four channel radio, with the R/L tip elevons used as ailerons and the inside surfaces as the elevator?

This set up would work but would create a significant increase in drag and a decrease in lift. The tip ailerons would need to be trimmed slightly up to create some reflex at the wing tip. I would adjust the amount of reflex until the elevator and tip elevons are reflexed the same amount after the plane has been flown and trimmed.

2. Can the plane be flown with two elevons instead of four in a more common set up? This would also work but the center of the elevons would create drag in aileron rolls. You would see an increase in yaw in turns and rolls