R/C DUAL RATES & EXPONTENTIAL

EXPLAINED

***Exponential and Dual Rates are two totally different things.***  
  
Dual Rates - This allows you to set the maximum throw of your servers to something other then 100%. So lets say you have a plane and the instructions give you different maximum throws for different flying characteristics of the plane. Lets say they tell you to set the rate for 3D flying of the Elevator to 40mm and set the elevator for normal flying at 20mm. You would set up dual rates via a switch in your transmitter that would enable you to flip a switch and have your elevators maximum throw be what you set up. In this case either 40mm or 20mm depending on how you want to fly the plane.  
  
Exponential - This allows you to set up how sensitive the stick is. So lets say that you have your dual rate switch set for 40mm on your elevator from the previous example. Normally when you move the elevator stick with no exponential you will get a fairly linear movement of your elevator and your stick. So lets say you move your stick 1/4 of the way in either the up or down position your elevator would move approximately 10mm. Now with exponential you can modify that curve. Lets say you add in the type of expo found on most radios and lets say you add in -50. Now this will be different on different radios so don't take what I am telling you to heart on your particular radio. But lets say you have X radio and you set the exponential to -50. Now when you move the stick on your radio to 1/4 you will probably get something like 5mm of throw. Then continuing on to 1/2 stick you may get something like 10mm of throw. Now moving on to 3/4 you will really start to see movement in your elevator to maybe 25mm notice how much faster the elevator starts to move the further out you get on the stick. Most of the time this is used to cause the stick to be less sensitive around the neutral position. So if you have your dual rates lets say set up for 3D flying and without exponential your bird may be quite a handful trying to take off and land if your set for 3D flying as your elevator reacts quickly when you have that much throw. You could use exponential to soften that throw around neutral on the stick to not get so much throw so fast. You would have that full 40mm at full stick deflection but you would not have is quite as fast as you move the stick from its neutral position.

**Expo (exponential):**  
This setting alters how sensitive the sticks are around the center point. It does not alter the total throw of the servo movement. It alters the default linear curve to one that either is less sensitive (positive expo) or more sensitive (negative expo) around the middle point. Typically, start with 30% for aircraft on all surfaces, and then alter as deemed necessary. This allows for a little more stick movement around the middle for more precise flying. Typically 25-40% expo on control surfaces is typical for beginners.