SIZING RUBBER MOTORS BY DAVE MITCHELL

Without a bunch of experience under your belt, knowing where to start when sizing a rubber motor to a model is a daunting task. All the charts in the world won't help if your model is chronically over-or-under-powered. Here are some great rules of thumb, using formulas that even I can master.

DETERMINING THE CROSS SECTION OF RUBBER TO PUT IN YOUR MODEL

This is extremely useful. The formula is:
Total Model Weight /90 = rubber cross section

Total Model Weight is the weight of the empty model + the weight of the rubber motor.

As a rule of thumb, most models will begin to perform best with a motor that is at minimum 25% of the total model weight.

To arrive at this number, take your empty model weight (in grams), divide it by three, and add that number back to your empty airframe weight.

Let's put that in practice. Say you have a model that weights 50g without rubber. 1/3 of 55 =16.5, so you want to use a 16.5g motor weight in your calculations. Thus, our Total Model Weight is 66.5g (50g +16.5g). Divide this by 90 to arrive at a motor cross section of approximately .75".

DETERMINING THE LENGTH OF RUBBER TO PUT IN YOUR MODEL
So, you don't have a scale handy at the field for weighing a rubber motor? No problem. Because we know the average weight of rubber, if we have already calculated a desired motor weight and a desired cross section, we don'T need no stinkin' scale .... this formula will get you in the ballpark.

Motor Length = (1.5W)/b
where "W" is desired motor weight
"b" is motor cross section

We suggested earlier that models tend to perform best with a motor that is at minimum 25% of the Total Model Weight. Using our hypothetical 50g empty weight model again, we have a desired motor weight of 16.5g. We also have a suggested motor cross section of .75". So:

15 x 16·5 = 24·75/ ·75 = 33

A 33" motor of ·75" cross section should do well to get you started!

Every model is different, of course; we have not even begun to examine the effect of obvious variables such as prop diameter and pitch, much less different aircraft configurations such as high drag biplanes vs. slippery monoplanes But for your basic Free Flight model, the above information will serve you well ...