LMR Model Size, Battery, Motor and Propeller Design Tables

NiCad Battery / Model Alternatives for LMR					*Model Minimum All Up Weight, including battery*							
Cell Type	**Manufac-turers Capacity**	**Cell Bare Weight ~oz.**	**Current Limit ~Amps**	**Model All Up Weight* per cell ~ oz**	**Number of Cells**							
					5	**6**	**7**	**8**	**9**	**10**	**11**	**12**
N-800 AR	800	1.11	29	4.6	22.9	27.4	32.0	36.6	41.1	45.7	50.3	54.9
N-1000 SCR	1000	1.48	36	5.7	28.6	34.3	40.0	45.7	51.4	57.1	62.9	68.6
N-1250 SCR	1250	1.48	45	7.1	35.7	42.9	50.0	57.1	64.3	71.4	78.6	85.7
CP-1300 SCR	1300	1.16	40	7.4	37.1	44.6	52.0	59.4	66.9	74.3	81.7	89.1
CP-1700 SCR	1700	1.53	58	9.7	48.6	58.3	68.0	77.7	87.4	97.1	106.9	116.6
N-1300 SCR	1300	1.79	47	7.4	37.1	44.6	52.0	59.4	66.9	74.3	81.7	89.1
N-1900 SCR	1900	1.96	68	10.9	54.3	65.1	76.0	86.9	97.7	108.6	119.4	130.3
RC-2000	2000	2	72	11.4	57.1	68.6	80.0	91.4	102.9	114.3	125.7	137.1
CP-2400 SCR	2400	2.09	86	13.7	68.6	82.3	96.0	109.7	123.4	137.1	150.9	164.6

* Including battery

Wing Area ~ square inches					
	Wing Loading ~ ounces / square foot				
Weight	***Minimum***				
ounces	**8**	9	10	11	12
20.0	**360**	320	288	262	240
22.0	**396**	352	317	288	264
24.0	**432**	384	346	314	288
26.0	**468**	416	374	340	312
28.0	**504**	448	403	367	336
30.0	**540**	480	432	393	360
32.0	**576**	512	461	419	384
34.0	**612**	544	490	445	408
36.0	**648**	576	518	471	432
38.0	**684**	608	547	497	456
40.0	**720**	640	576	524	480
42.0	**756**	672	605	550	504
44.0	**792**	704	634	576	528
46.0	**828**	736	662	602	552
48.0	**864**	768	691	628	576
50.0	**900**	800	720	655	600
52.0	**936**	832	749	681	624
54.0	**972**	864	778	707	648
56.0	**1008**	896	806	733	672
58.0	**1044**	928	835	759	696
60.0	**1080**	960	864	785	720
62.0	**1116**	992	893	812	744
64.0	**1152**	1024	922	838	768
66.0	**1188**	1056	950	864	792
68.0	**1224**	1088	979	890	816
70.0	**1260**	1120	1008	916	840
72.0	**1296**	1152	1037	943	864
74.0	**1332**	1184	1066	969	888
76.0	**1368**	1216	1094	995	912
78.0	**1404**	1248	1123	1021	936
80.0	**1440**	1280	1152	1047	960

1 Pick a model size and wing loading

2 Identify the combination and number of cells that are close to the desired model weight

3 Adjust the model size and weight to fit the desired pack. Model MUST weigh at least the indicated amount; more is OK.

4 Calculate the required motor power
Power = number of cells x current

5 Select a candidate motor that can take the power - or

6 Select a candidate motor that can take the current

7 Select a prop that will draw the required current on the selected battery. Use manufacturer's data - or

8 "Test" the battery, motor and prop on P-Calc; http://brantuas.com/ezcalc/dma1.asp

9 For an inrunner motor also try different gear ratio and prop combinations. Big props are good.

Motocalc and Electric Texaco Sizing

You can download a 30 day free evaluation but it costs only $40 to buy.
You will save $40 the first time you select the correct propeller and avoid burning up your ESC or motor. http://www.motocalc.com/
With Motocalc you can input your model parameters, define it's aerodynamics in terms of airfoil and other features then calculate its performance.
You get Rate of Climb and duration of the motor run at full throttle, Motor current and voltage, propeller RPM and overall drive efficiency
You also get the duration of flight at cruise throttle, and this is the number indicative of your ETex still air perfomance.
Of course you may "try" many different motor, gearbox, propeller and battery configurations and compare the results. Motocalc has an extensive data base of motors and batteries and the characteristics of the various popular propellers that can be selected from the menus.
The process I use is to select a candidate motor, gearbox and battery, then select a range of propellers. I am searching for the maximum cruise flight time with a combination that has at least a 120 feet per minute rate of climb. It must also operate within the motor / ESC and battery current limits at take off power.
Just keep searching until you find a combination that meets your needs.