THE KNIGHT FLYER

Oct-Nov-Dec **2004**
Editor: **Jim Devlin**

2004 RALLY IS HUGE SUCCESS

The club members listened to the weatherman with a lot of apprehension in the weeks before our scale rally. After the deluge that we endured last year, it was little wonder.

The summer pattern this year was not the most optimistic, with rain every 3 or 4 days.

Eden residents consulted their 2004 issues of the Farmer's Almanac in hopes of penetrating the mysteries of long term weather prediction.

As usual the weather guys on TV hedged their bets and always included a random shower or thunderstorm in their forecast.

So what's a flyer to do?

Well, the day finally arrived and the rally got of to a fine start. The clouds never really left, but the winds were ideal for flying.

Rumor has it that the rain really came down in the town next to us, but we never saw it.

There were 5 planes in the air, nearly continuously throughout the day.

The day moved quickly with a brisk business done by our food tent crew.

Spectators came steadily and our parking crew handled their task with superb efficiency.

At the end of the day, prizes were given out. Thanks to the response of the RC manufacturers, there were plenty of goodies to go around.

The club was especially grateful for the donation of a complete RC radio from Great Planes.

At 5 pm the many fliers lined up for the traditional Knights Pilot dinner. It was a splendid array of great food brought in by the families of the Knights.

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Our 2004 Rally began with the Canadian and American Anthems sung by long time member Herb Horni.

No sooner had the inspiring notes faded away, when the first model engine leapt into action.

All day long the sound of model engines continued. The flyers took full advantage of the great conditions.

The planes of 2004

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At 5 pm the fliers lined up for the traditional Knights Pilot dinner.

It was a splendid array of great food brought in by the families of the Knights.

The club supplied the hot dogs and the hamburgers for everyone. The dinner was the high point of the day.

On Sunday, the weather turned a little gray but improved as the day went along.

Unfortunately in the afternoon the wind picked up a pretty brisk pace and many of the fliers prudently decided not to risk their aircraft.

Although the wind was not a problem for Buffalo fliers, a few of the guests faced with a long drive home, decided to leave.

The rally shut down a little early to give those remaining an opportunity to get in on the pilot drawings.

The long awaited warbird raffle also took place Sunday afternoon.

It was won by Ken Schlierf of 192 Holiday Lane in Hamburg.

Watching Dad's Airplane

Sunday afternoons usually seem to close down early so it was mentioned that maybe Sunday should be planned as a shorter day.

The 2004 rally was one of the best ever.

A great deal of thanks has to go to all of the members who put in long hours and a lot of effort to make it so.

From the Prez...

2004 Scale Rally - - - - -BEST EVER!!

Congratulations to all our members, new and old. Your hard work made this years scale rally the best ever.

It was an exciting time for all those who came to watch, with 60 pilots and 132 flights on Saturday alone.

The crowds were so large on both days that by early Sunday afternoon, our concession stand was sold out.

Blessed with good weather and great advertising, this fund raiser not only helped our club, but Camp Good Days and Special Times. Congratulations again.

Ron

Nike base rules update:

1) The town informed the RC Crafters, if there is anyone flying illegally and won't cooperate when approached, the police can be called, using the dispatch # 648-5111. Do NOT use 911!

2) No vehicle parking near or around the shelter except for handicapped personnel.

3) Dogs are not allowed beyond the fenced area.

4) Any time a person is at the field for the purpose of flying, his or her radio should be in the impound area until the time of flying.

Frequency List

During the year we have had a number of new members and previous members have changed radios. Our current tally is only 23% complete.

The frequency stats will therefore appear in the January issue of the Knight Flyer.

Using the computer to analyze electric aircraft

The computer was invented over 50 years ago.

In those days, and many of us remember them well, we used a stick to write with.

It was filled with black stuff that someone said was related to diamond.

Each of these sticks was cleverly outfitted with a rubber tip that was used to remove any marks made in error.

Oh, that things should ever be so simple again.

Great things were done with this "pencil".

Full scale airplanes, powerful engines and all manner of mechanical devices were designed and built using pencil and paper.

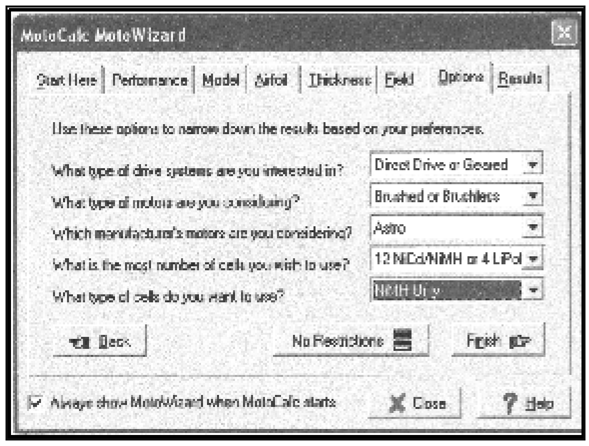
But time moves on. And machines get better. Today, a computer can do the work of a million pencils, and do it before your coffee gets cold.

Today, a lot of folks are using the computer to unload, store and print photos from their digital cameras.

Every computer comes with some very powerful built in software, but many of us have never looked at it.

We know that it's there.

Three kinds of useful programs are on every computer

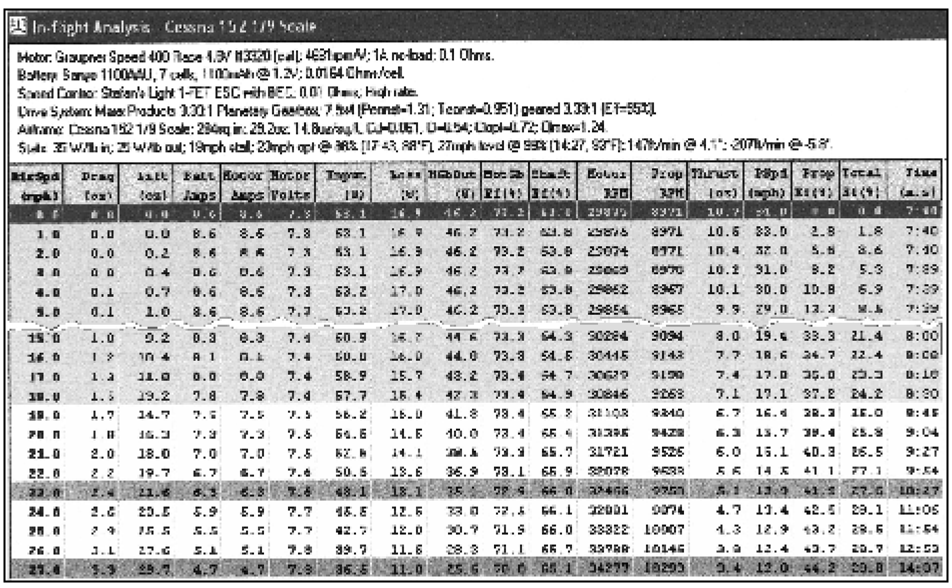


So how does the computer help a modeler?

More than half of our club members own a computer. Most people use their computers primarily for email.

These programs are a "word processor", a "spreadsheet" and a "data base".

We would be quite surprised to see how convenient and easy to use these programs are.



In-flight Analysis - Cessna 152 1/9 Scale

Motor: Graupner Speed 400 Race 4.8V #3320 (cell); 4631rpm/V; 1A no-load; 0.1 Ohms.
Battery: Sanyo 1100AAU, 7 cells; 1100mAh @ 1.2V; 0.0164 Ohms/cell.
Speed Control: Stefan's Light 1-FET ESC with BEC; 0.01 Ohms; High rate.
Drive System: MaxxProducts 3.33:1 Planetary Gearbox; 7.5x4 (Pconst=1.31; Tconst=0.951) geared 3.33:1 (Ef=95%).
Airframe: Cessna 152 1/9 Scale: 294sq in; 29.2oz; 14.3oz/sq ft; Cd=0.061; Cl=0.54; Clopt=0.72; Clmax=1.24.
Stats: 35 W/lb in; 25 W/lb out; 19mph stall; 23mph opt @ 98% (17:43, 88°F); 27mph level @ 99% (14:27, 93°F); 147ft/min @ 4.1°; -207ft/min @ -5.8°.

AirSpd (mph)	Drag (oz)	Lift (oz)	Batt Amps	Motor Amps	Motor Volts	Input (W)	Loss (W)	MtrOut (W)	Mot Gb Ef(%)	Shaft Ef(%)	Motor RPM	Prop RPM	Thrust (oz)	PSpd (mph)	Prop Ef(%)	Total Ef(%)	Time (m:s)
0.0	0.0	0.0	8.6	8.6	7.3	63.1	16.9	46.2	73.2	63.8	[illegible]	8971	10.7	[illegible]	[illegible]	0.0	7:40
1.0	0.0	0.0	8.6	8.6	7.3	63.1	16.9	46.2	73.2	63.8	29876	8971	10.6	33.0	2.8	1.8	7:40
2.0	0.0	0.2	8.6	8.6	7.3	63.1	16.9	46.2	73.2	63.8	29874	8971	10.4	32.0	5.6	3.6	7:40
3.0	0.0	0.4	8.6	8.6	7.3	63.1	16.9	46.2	73.2	63.8	29869	8970	10.2	31.0	8.2	5.3	7:39
4.0	0.1	0.7	8.6	8.6	7.3	63.2	17.0	46.2	73.2	63.8	29862	8967	10.1	30.0	10.8	6.9	7:39
5.0	0.1	1.0	8.6	8.6	7.3	63.2	17.0	46.2	73.2	63.8	29854	8965	9.9	29.0	13.3	8.5	7:39
15.0	1.0	9.2	8.3	8.3	7.4	60.9	16.7	44.6	73.3	64.3	30284	9094	8.0	19.6	33.3	21.4	8:00
16.0	1.2	10.4	8.1	8.1	7.4	60.0	16.0	44.0	73.3	64.5	30445	9143	7.7	18.6	34.7	22.4	8:08
17.0	1.3	11.8	8.0	8.0	7.4	58.9	15.7	43.2	73.4	64.7	30629	9198	7.4	17.8	36.0	23.3	8:18
18.0	1.5	13.2	7.8	7.8	7.4	57.7	15.4	42.3	73.4	64.9	30846	9263	7.1	17.1	37.2	24.2	8:30
19.0	1.7	14.7	7.5	7.5	7.5	56.2	15.0	41.3	73.4	65.2	31103	9340	6.7	16.4	38.3	25.0	8:45
20.0	1.8	16.3	7.3	7.3	7.5	54.6	14.6	40.0	73.4	65.4	31395	9428	6.3	15.7	39.4	25.8	9:04
21.0	2.0	18.0	7.0	7.0	7.5	52.6	14.1	38.5	73.3	65.7	31721	9526	6.0	15.1	40.3	26.5	9:27
22.0	2.2	19.7	6.7	6.7	7.6	50.5	13.6	36.9	73.1	65.9	32078	9633	5.6	14.5	41.1	27.1	9:54
23.0	2.4	21.6	6.3	6.3	7.6	48.1	13.1	[illegible]	[illegible]	66.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10:27
24.0	2.6	23.5	5.9	5.9	7.7	45.5	12.5	33.0	72.6	66.1	32881	9874	4.7	13.4	42.5	29.1	11:06
25.0	2.9	25.5	5.5	5.5	7.7	42.7	12.0	30.7	71.9	66.0	33322	10007	4.3	12.9	43.2	28.6	11:54
26.0	3.1	27.6	5.1	5.1	7.8	39.7	11.6	28.3	71.1	65.7	33788	10146	3.9	12.4	43.7	28.7	12:53
27.0	3.3	29.7	4.7	4.7	7.8	36.5	11.0	25.6	70.0	65.1	34277	10293	3.4	12.0	44.2	28.8	14:07

Many computer owners do not know how to use spreadsheets, (see sidebar).

Actually you don't have to. Others have created special programs that make them easy to use.

If you do know how to use them, they will open up a whole new world of aeronautical analysis for you.

You can compute and compare engine parameters. You can calculate flight characteristics.

You can design your own aircraft or analyze everything about the aircraft you already have.

It is a very powerful and easy to use tool. As easy as scribbling on a desktop, which is basically what it really is.

Let's take a look at some software that will already do all of this magic stuff for you.

If your thing is electric flight a very neat program is available that will do all of the calculations for you and give you graphs and flight characteristics for any plane you wish to fly. What more could you want?

This program comes ready to use. It contains all of the parameters for many different kinds of electric motors.

You don't even have to know any of that electric stuff.

Along with the motors there are numerous controllers.

All of the gear box data is in there too.

Even the batteries, in a myriad of configuration, are available in the program.

There is also a variety of airframes. All you have to do is pick an engine, a controller, a plane and a battery.

The program will tell you immediately if your combination will fly or not.

But better than that, the program will calculate the entire flight regime and provide you with excellent graphs of all the flight parameters in dozens of displays.

The program combines a wealth of information and is super simple to use.

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ALL ABOUT SPREADSHEETS

"Holy Numberline", Batman, "What the heck is a **spreadsheet**?"

"Don't know", Robin, "but every computer has one."

A large number of our group now own computers. Most of us use them for email and seldom look at some of the neat applications that came with them.

A lot of us who are modelers, often like to delve more deeply into the subject of our hobby.

We are all aware that there is quite a mathematical background to the subject of aeronautics and modeling.

Computers often intimidate us, or we figure, that you can't teach old dogs new tricks.

However there is a certain satisfaction about understanding the "why" of our models. What makes them behave the way they do. Or maybe we would like to understand the design of our planes.

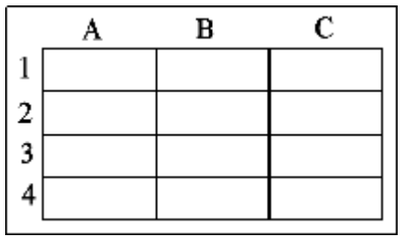
Of course, there's a calculator in the Accessories, on your Program Menu.

But, a **spreadsheet** is giant calculator that you can easily program many different ways. You will find the spreadsheet under such headings as Office if you have the "professional" version of windows, or Works if you have the "home" version.

Let's take a look at a typical spreadsheet and see what it can do for us as modelers.

We'll do this very simply.

Picture first a large blank deskpad. Now draw vertical lines to divide it into columns. Next, draw horizontal lines to divide the columns into cells.



To show how the spreadsheet works just pick out an array of 4 cells. The top 2 cells across are A and B. The rows are called 1 and 2.

This makes the upper corner cell A1. The cell next to it is B1. The names of the next row of cells are A2 and B2.

Enter any 2 numbers into cells A1 and B1.

Now comes the neat part.

In cell A3, enter a formula for the sum of the two cells. This can be written as, A1+B1. In cell A4 write the formula for the difference, A1-B1.

On the computer, what will appear in cell A3 is not the formula, but the result. The same for cell A4.

As an example, if we enter the numbers 5 and 3 into A1 and B1, cell A3 will immediately show the answer, 8. A4 will show the answer, 2.

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You just decide what you want and the program does all of the rest.

No math , no fuss.

So you ask, how much does this little gem cost? Do I have to get an equity loan to pay for it?

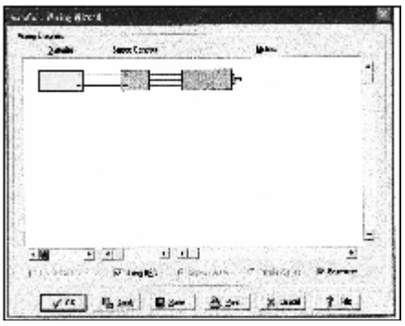
Weeell, here's the good news. This program costs about $35 U.S. bucks.

It is without doubt, the best bargain on the Internet.

Design your dream plane from the wealth of data on nearly every airframe, motor, controller and gearbox available.

Match up any of the commercial battery packs from the list or brew your own.

The program will even cough up a circuit diagram.



You can even design your own airframe and if you are the consummate experimenter, you can even wind your own motor.

So, here you are, with your airplane, motor, and batteries selected, ready to go.

How do you know if any of this stuff will work.

That's the best part of the program. It takes all of your data and cranks out an easy to understand list of airspeed vs almost any other parameter you can think of.

And to gild the lily, it will give you a graph of everything in just about any combination.

You can print the data including the graphs to use in the shop while you assemble your plane or to email to your building buddies.

Find out all about this great tool at their website,

www.motocalc.com.

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The spread sheet works by what is called cell reference. In other words, it uses the cell address to do its thing.

	A	B	C
1	A1	B1	C1
2	A2	B2	C2
3	A3	B3	C3
4	A4	B4	C4

We put numbers into two of the cells. We put instructions into the other two cells that contained the address of the numbers.

We could put just about any kind of instructions into the cells. That is the amazing power of the spreadsheet.

	A	B
1	5	3
2	(A1+B1)	(A1-B1)
3	(A1*B1)	(A1/B1)
4		

Obviously, if we were to change the numbers in the first two cells, the spread sheet would instantly calculate the new answers in cells A2 and B2.

	A	B
1	5	3
2	8	2
3	15	1.666
4		

Spreadsheets contain thousands of cells and both numbers and instructions can be repeated indefinitely.

All spreadsheets will automatically create graphs of the numbers in the cells. this is a powerful and easy to use tool that is contained on every computer.

It can be used to calculate your budget or design your next airplane.