

MotoCalc8 on Linux Mini-HowTo

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The purpose of this document is to capture information that might help others run Capable Computing's **MotoCalc** Electric Flight Performance Prediction Software on Linux. Once the developers of MotoCalc expressed some interest in how the application ran under Linux, I decided to test it more thoroughly and document it for the community.

In short, MotoCalc runs just fine on Linux, thanks to the efforts of the Wine development team. Depending on your distribution and version of Wine, some tweaks may be needed, and are the subject of later sections in this document.

Document sections

- Wine background
- Notes on specific systems
- Installation instructions
- Summary

Wine background

First, let me say that I am definitely NOT a Wine expert. In fact, MotoCalc is the first application that I have tried to use under Wine since I declared myself Microsoft-free a number of years ago. There is a great deal of information related to Wine at the Wine official homepage, <http://www.winehq.org/>.

Wine versions

This topic seemed kind of confusing to me at first. Wine releases are fairly frequent, and it seems that many distributions come with versions of Wine that are fairly old. Initially during the 'alpha' release cycle Wine releases were versioned based on the date of the release. My Mandrake 10.1 system came with Wine 20040813, and the SuSE 10.0 system came with Wine 20050725. The last alpha release was 20050930. At that point the Wine developers felt that the product had reached the beta phase and they began releasing the 0.9 versions. As of the date of this initial writing the current version was 0.9.8, released on 2/15/2006.

Check your release with **wine --version**

Wine configuration

Again, depending on the version of Wine, the configuration options are different. In most distributions menu links to `winecfg` should have been made as part of the installation, but if not you can run `winecfg` from the command line.

Wine fonts

This is probably obvious to everyone but me, but I have a hard time understanding exactly how the fonts are controlled. I tried several times to change the default font using registry keys, but was unable to. In the end, I wound up copying the font I wanted Wine to use by default to the directory `.wine/c_drive/windows/fonts`. See the specific instructions in the Mandriva and SuSE sections below.

Notes on specific systems

Mandrake 10.1 / Wine 20040813

This was the first system that I tried. The fonts definitely were not very readable, but the application started. Unfortunately every attempt to access information such as the motor database caused an access violation. The version of Wine was old enough that I did not try and troubleshoot it further. My guess is that versions of Wine older than 2005 will not properly support the calls to read the MotoCalc data files.

SuSE 10.0 / Wine 20050725

MotoCalc seems to run perfectly right off the bat, with no changes to the Wine configuration needed. The default fonts are ok but are a bit small and hard to read at times (See the **Installation** section below for more information). All of the functions of MotoCalc that I have tested work as expected, including configuring the proxy, updating, saving projects and printing. I chose to register my version by keying in the registration code, so I have not tried the online registration.

Mandriva 2006 / Wine 20050725

MotoCalc runs, but the default font is pretty skank, being small and italicized. The software is usable in this state, but difficult on the eyes. To correct the font issue, I did the following:

- From the **Applications** menu select **More Applications -> Wine -> Configurator**.
- Select the **Drives** tab and note the path to the **C:** drive. This is the Linux path relative to the `.wine` directory. In my case it was `./drive_c`.
- From a command line prompt at the home directory, `cd` to `.wine`, then to the `./drive_c` directory, then to `./windows` then `./fonts`. e.g.:

```
[user]$ cd .wine
[user]$ ls
dosdevices/      drive_c/      system.reg      userdef.reg      user.reg
[user]$ cd drive_c
[user]$ ls
My Documents/    Program Files/  windows/
[user@]$ cd windows
[user@]$ ls
Application Data/  inf/           profiles/       Start Menu/      temp/
winhelp.exe@      command/       My Documents/   regedit.exe@     system/
uninstall.exe@    winhlp32.exe@  fonts/
```

```

notepad.exe@          rundll32.exe@          system.ini
winebrowser.exe@     win.ini
[user]$ cd fonts
[user]$ ls
[user]$ pwd
/home/user/.wine/drive_c/windows/fonts

```

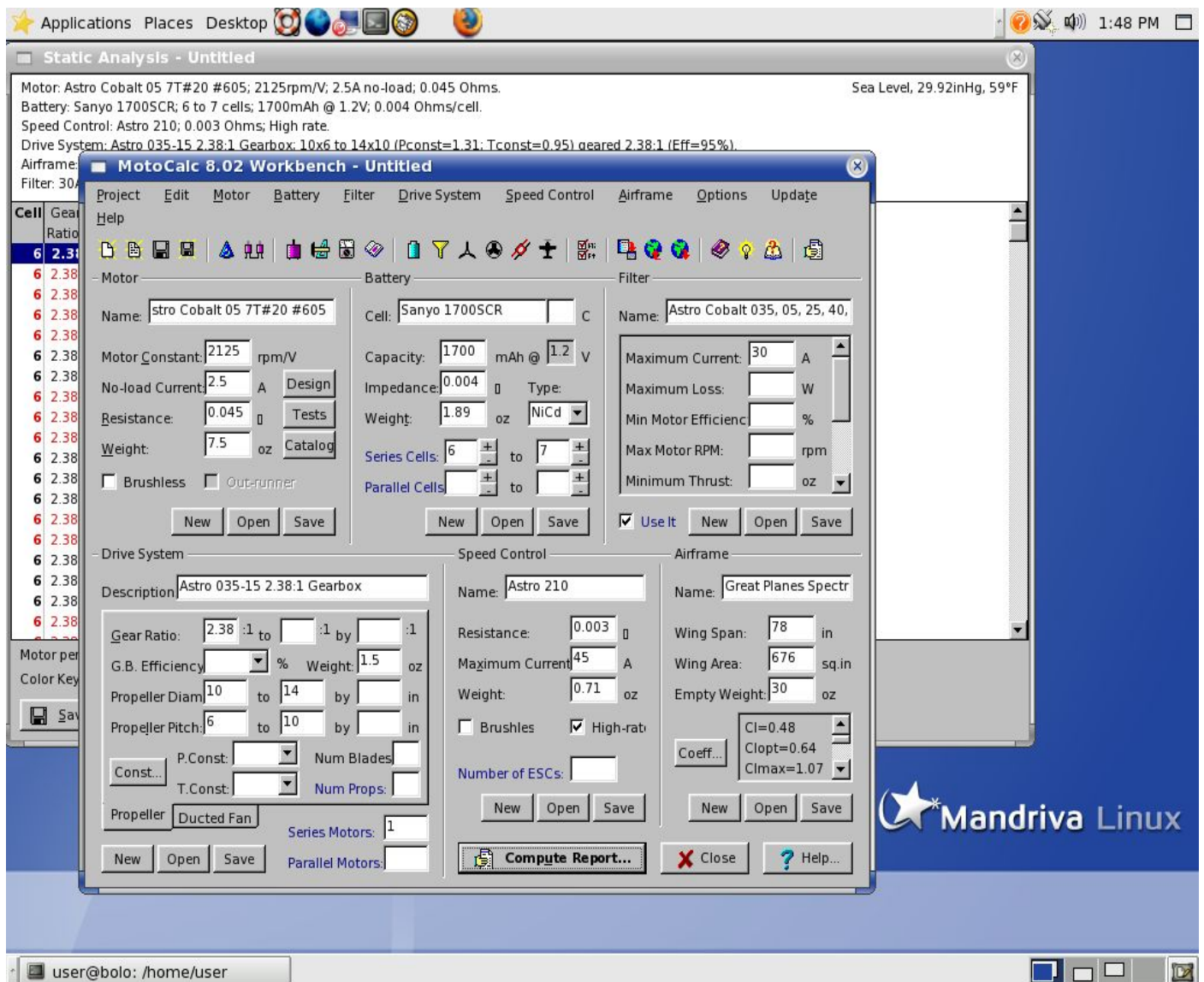
- I then found a set of TrueType fonts that I liked in /usr/share/fonts/ttf/dejavu
- I copied the basic font DejaVuSans.ttf to the wine setup's font directory. e.g.

```

[user]$ pwd
/home/user/.wine/drive_c/windows/fonts
[user]$ cp /usr/share/fonts/ttf/dejavu/DejaVuSans.ttf .
[user]$ ls -l
total 96
-rw-r--r--  1 user user 92024 Feb 18 13:45 DejaVuSans.ttf

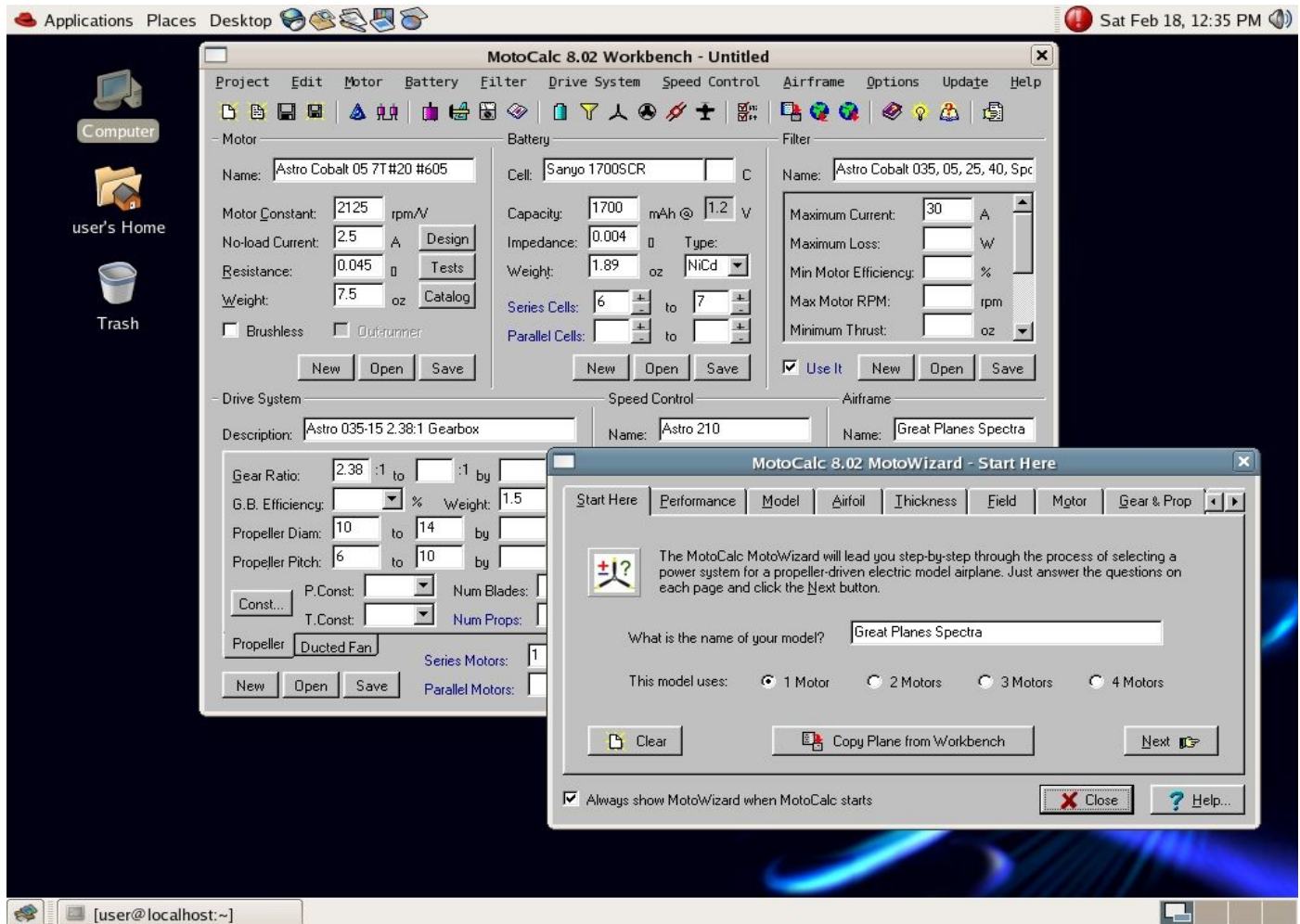
```

- At this point wine uses a nice clean sans serif font when running MotoCalc. The fonts appear to be scaled properly and are quite nice.



Fedora Core 4 / Wine 0.9.7

Wine was not installed as a default part of Fedora Core 4, but is a part of Fedora 4 Extras. The current version of Wine on <http://www.rpmfind.net> for Fedora 4 is 0.9.7-3.fc4. I downloaded and installed the RPM to test MotoCalc. Installation of MotoCalc was essentially the same as is outlined below for SuSE 10.0. The fonts are actually quite nice, and the interface looks good with a 1024x768 desktop. I did not do a complete test on FC4, since it really is not my distro of choice. The cursory checks I performed worked as expected, however.



Installation instructions

Note: These instructions are based on the following assumptions:

SuSE Linux version 10.0 distribution, Wine version 20050725,

MotoCalc version 8.02,

Logged in on your Linux box as a normal user,

No windows environment on the system.

Ensure that wine is loaded on your system. if you have not already run Wine once, the `~/ .wine` configuration directory will need to be created. The best way is to simply do:

```
user@linux:~> wine --version
wine: creating configuration directory '/home/user/.wine'...
wine: '/home/user/.wine' created successfully.
Wine 20050725
```

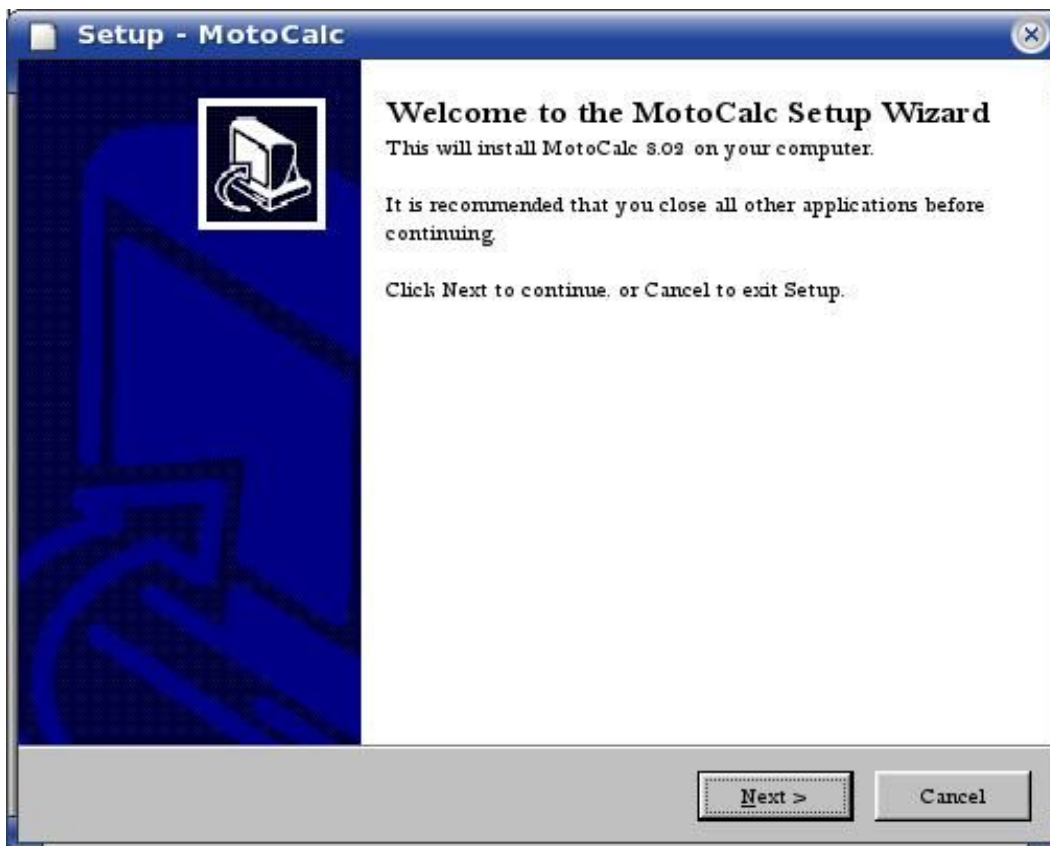
Download the MotoCalc Installer from <http://www.motocalc.com/motodown.htm>. The file will be called `Install_MotoCalc_8.exe`. Save this file in your home folder.

Open up a command line terminal.

Run the MotoCalc installer using Wine.

```
user@linux:~> wine ./Install_MotoCalc_8.exe
```

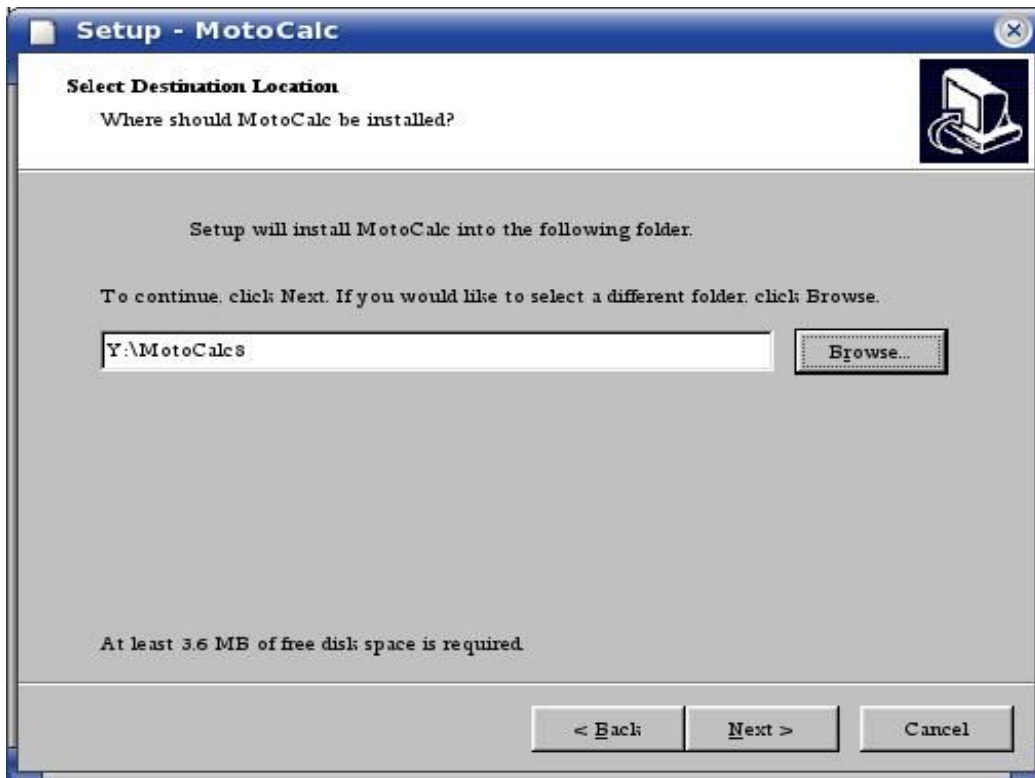
The installation program should bring up a the MotoCalc Setup Wizard window shown below:



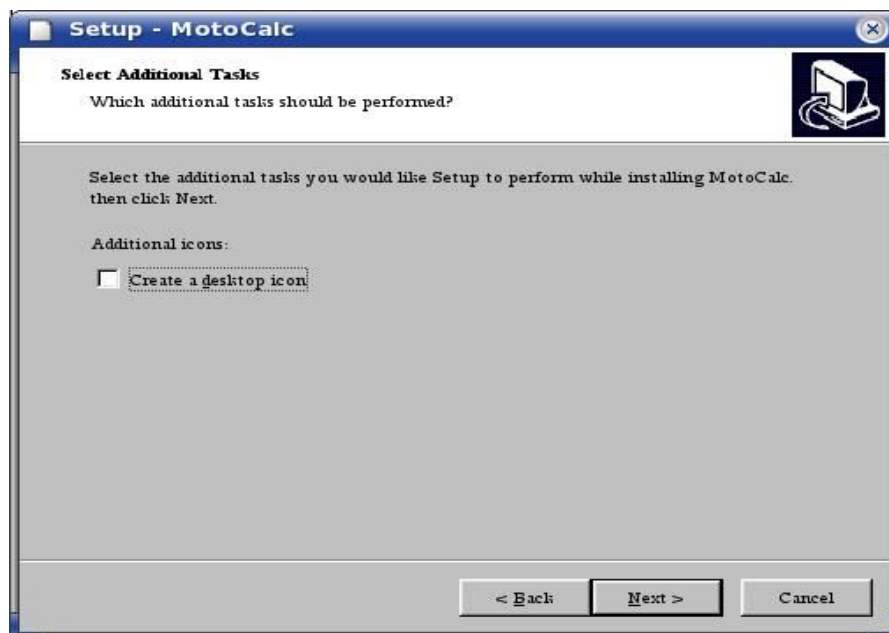
Click on **Next** to continue. Read and accept the license agreement, and continue on. The next dialog box will ask for the installation path. At this point, click on the **Browse** button to bring up a file folder browser. Virtual directories corresponding to Windows paths are shown, along with your user home directory. I elected to use my home directory as the installation base, and so simply selected my home folder and clicked on OK. The resulting path shows up as `Y:\MotoCalc8`. This will equate to `~/MotoCalc8` thru

the magic of Wine. The drive letter (**Y:** \ in this case) may be different depending on your Wine setup. These can be changed using **winecfg**.

During the installation, there may be a few Wine-related error messages. These don't seem to affect the installation, at least in my experience.



Click on **Next** to continue. Accept the option to create a Startup menu shortcut, and on the next window deselect the creation of a desktop icon.



Click on **Next** to continue, then **Install**. The wizard should unpack the files and bring up the final wizard dialog. Uncheck the “**Start MotoCalc**” box and click on **Finish**.



This should return you to the command prompt.

At this point you should have a directory or folder in your home directory called MotoCalc8.

```
user@linux:~> ls -l
total 1416
drwxr-xr-x  2 user users    4096 2006-02-18 10:36 bin
drwx-----  2 user users    4096 2006-02-18 10:44 Desktop
drwx-----  2 user users    4096 2006-02-18 10:36 Documents
-rw-----  1 user users 1423767 2006-02-18 10:37 Install_MotoCalc_8.exe
drwxr-xr-x  2 user users    4096 2006-02-18 10:39 MotoCalc8
drwxr-xr-x  2 user users    4096 2006-02-18 10:36 public_html
```

And inside of that folder should be the MotoCalc8 files.

```
user@linux:~> ls -l MotoCalc8/
total 3764
-rw-r--r--  1 user users  18719 2006-01-15 11:18 Airfoil.lst
-rw-r--r--  1 user users   6773 2006-01-27 18:41 AIRFRAM8.DBF
-rw-r--r--  1 user users  12703 2006-01-27 18:41 CELL8.DBF
-rw-r--r--  1 user users  17528 2006-01-27 18:41 DRIVE8.DBF
-rw-r--r--  1 user users   9424 2006-01-27 18:41 ESC8.DBF
-rw-r--r--  1 user users   2783 2006-01-27 18:41 FANDRIV8.DBF
-rw-r--r--  1 user users   3891 2006-01-27 18:41 FILTER8.DBF
-rw-r--r--  1 user users    220 2003-06-23 08:56 GearboxEff.lst
-rw-r--r--  1 user users    144 2005-12-28 15:21 Manufacturer.lst
-rw-r--r--  1 user users  96031 2006-01-27 18:41 mcautoup.txt
-rw-r--r--  1 user users  20121 2006-01-27 18:41 MOTOCAL8.DBF
```

```

-rw-r--r--  1 user users      2794 2003-07-10 22:04 MotoCalc.cnt
-rwxr-xr-x  1 user users 2771968 2006-01-27 18:37 MotoCalc.exe
-rw-r--r--  1 user users  180991 2006-01-29 17:00 MotoCalc.hlp
-rw-r--r--  1 user users  113138 2006-01-27 18:41 MOTOR8.DBF
-rw-r--r--  1 user users      209 2003-06-23 13:32 PropConst.lst
-rw-r--r--  1 user users  155648 2000-09-13 06:14 sde50.dll
-rw-r--r--  1 user users  274502 2000-09-13 06:14 sdecdx50.dll
-rw-r--r--  1 user users      319 2003-06-23 13:33 ThrustConst.lst
-rw-r--r--  1 user users   7736 2006-01-02 10:14 Tips.lst
-rw-r--r--  1 user users   2387 2006-02-18 10:39 unins000.dat
-rwxr-xr-x  1 user users  77257 2006-02-18 10:39 unins000.exe
-rw-r--r--  1 user users    321 2005-11-19 11:52 WizardCells.lst
user@linux:~>

```

You can then run MotoCalc with

```
user@linux:~> wine ./MotoCalc8/MotoCalc.exe
```

or use the same command from the Run Application menu option on the desktop.

As I mentioned earlier, the fonts were a bit small. To fix this, I copied the font I wanted to be the default to the wine fonts directory, in the same manner as was described in the Mandriva section above. In this case the font I used was a different one and in a different place, but the principle was the same. Specifically:

```

user@linux:> cd ~
user@linux:> cd .wine/drive_c/windows/fonts
user@linux:> pwd
/home/user/.wine/drive_c/windows/fonts
user@linux:> cp /usr/X11R6/lib/X11/fonts/truetype/SUSESans-Roman.ttf .
user@linux:> ls
SUSESans-Roman.ttf

```

A screenshot is shown on the following page.

Summary

If you intend to fly electrics, MotoCalc is well worth the \$39.00 registration fee. Thanks to Wine, MotoCalc runs just fine under Linux. As much trial and error as I have worked through in the past on different electric configurations, I wish I had checked this out several years ago!

Given that there are so many different distributions of Linux and versions of Wine, I would strongly advise you to download MotoCalc and test it on your specific system using the 30 day evaluation license to be sure that it will work for you as well.

I extend my thanks to the developers at Capable Computing for the development of MotoCalc and the interest in seeing it used by the wider community.

Feel free to contact me at gritzo@jerichodata.com with any updated or additional information.

Static Analysis - Taco

Motor: Model Motors AXI AC2814/12; 1390rpm/V; 1.8A no-load; 0.053 Ohms. Sea Level, 29.92inHg, 59°F
 Battery: Kokam 3200SHD (20C); 3 cells; 3200mAh @ 3.7V; 0.008 Ohms/cell.
 Speed Control: Castle Creations Phoenix 35; 0.0045 Ohms; High rate.
 Drive System: APC 11-Inch Propellers; 11x4 to 11x9 (Pconst=1.11; Tconst=0.95) direct drive.
 Airframe: Taco conversion; 450sq.in; 36.1oz RTF; 11.5oz/sq.ft; Cd=0.055; Cl=0.41; Clopt=0.46; Clmax=1.07.

Cell	Gear Ratio	Diam (in)	Pitch (in)	Weight (oz)	Batt Amp	Motor Amp	Motor Volts	Input (W)	InP (W)
3	1.00	11.0	4.0	36.1	31.8	31.8	10.2	323.4	143.4
3	1.00	11.0	4.5	36.1	32.2	32.2	10.2	327.4	145.4
3	1.00	11.0	5.0	36.1	32.4	32.4	10.2	330.4	146.4
3	1.00	11.0	5.5	36.1	32.4	32.6	10.2	331.4	146.4

Graph - Static Analysis - Taco

Motor: Model Motors AXI AC2814/12; 1390rpm/V; 1.8A no-load; 0.053 Ohms.
 Battery: Kokam 3200SHD (20C); 3 cells; 3200mAh @ 3.7V; 0.008 Ohms/cell.
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 Airframe: Taco conversion; 450sq.in; 36.1oz RTF; 11.5oz/sq.ft; Cd=0.055; Cl=0.41; Clopt=0.46; Clmax=1.07.

MotoCalc 8.02 Workbench - Taco

Motor: Model Motors AXI AC2814/12
 Battery: Kokam 3200SHD 20 C
 Filter: Astro Cobalt 035, 05, 25, 41
 Name: Model Motors AXI AC2814/12
 Cell: Kokam 3200SHD 20 C
 Capacity: 3200 mAh @ 3.7 V
 Impedance: 0.008 Ohms
 Weight: 2.83 oz
 Type: LiPo
 Maximum Current: 30 A
 Maximum Loss: W
 Min Motor Efficiency: %
 Max Motor RPM: rpm
 Minimum Thrust: oz

Motor Constant: 1390 rpm/V
 No-load Current: 1.8 A
 Resistance: 0.053 Ohms
 Weight: 3.7 oz
 Series Cells: 3 to 3
 Parallel Cell: 1 to 1

Drive System: APC 11-Inch Propellers
 Description: APC 11-Inch Propellers
 Gear Ratio: 1:1 to 1:1 by 1:1
 G.B. Efficiency: %
 Propeller Diam: 11 to 11 by in
 Propeller Pitch: 4 to 9 by .5 in
 P. Const: 1.11 Num Blades
 T. Const: Num Props
 Propeller: Ducted Fan

Speed Control: Castle Creations Phoenix 35
 Name: Castle Creations Phoenix 35
 Resistance: 0.0045 Ohms
 Maximum Current: 35 A
 Weight: 0.9 oz
 Brushless: High-rate

Airframe: Taco conversion
 Name: Taco conversion
 Wing Span: 36 in
 Wing Area: 450 sq.in
 Empty Weight: 23 oz
 Cl=0.41
 Clopt=0.46
 Clmax=1.07

Thrust (oz) vs PSpd (mph) graph showing two curves: a red curve decreasing from ~42 oz at 34 mph to ~36 oz at 44 mph, and a blue curve increasing from ~28 oz at 34 mph to ~38 oz at 44 mph.

Revision History

Version 1.0, 2/18/2006

Original document version

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