

Getting TLR46a for Windows 7 through Windows 10
Or
Rotax 914 TLR 4.6 for TCU part number 966741 Serial Monitor Program
Installation notes for Windows 10 and 7 computers using a Sabrent USB to Serial adapter.
By Bud Yerly

I have always had an old Windows 98 type laptop that had a serial port for keeping my 914 operating well. I bought the new 4.6 TCU so I would not need the Rotax dongle on my old 914. The TLR 4.6 program worked flawlessly. Unfortunately, my old laptop died, so I bought another serial port equipped computer. Only a year later, that replacement computer became unserviceable. That left me trying to find another DOS capable unit. Luck was running out and since Rotax developed a 64 bit Windows 10 capable program for my new laptop I decided to try making it work. Windows 10 and the Rotax factory got it to work. What could go wrong.

What a fiasco. No one I knew had successfully loaded and gotten the new Windows 10 version to work. I began a six month ordeal to try to get the program to run on my Windows 10 laptop. The program would load fine as did the USB to Serial cable via the install programs but when plugged into the aircraft it would say "Error 68...Beep and shut down. Frustrating! As I always say: "Don't reinvent the wheel, if somebody has done it before, I can to". The search began.

I read every blog post, every Rotax Forum post and was frustrated with the lack of completeness of the postings. Finally, a young guy at Lockwood was able to get a Windows 7 laptop to work using a Sabrent USB to serial adapter with an FTDI chipset. A number of Rotax 914 owners had done the same. If Lockwood could do it, obviously, I just need to get a Windows 7 computer and do what Lockwood's young mechanic did. I purchased an excellent Compac Windows 7, 64 bit laptop and my SCAN Computer guru Chris, loaded the TLR and USB to Serial program right up and behold it immediately displayed the program except it wouldn't talk to the airplane. When hooked to the USB and the plane, when selecting Monitor, Throttle or any command it would give an error: "Wrong TCU Version!" Now I'm really upset.

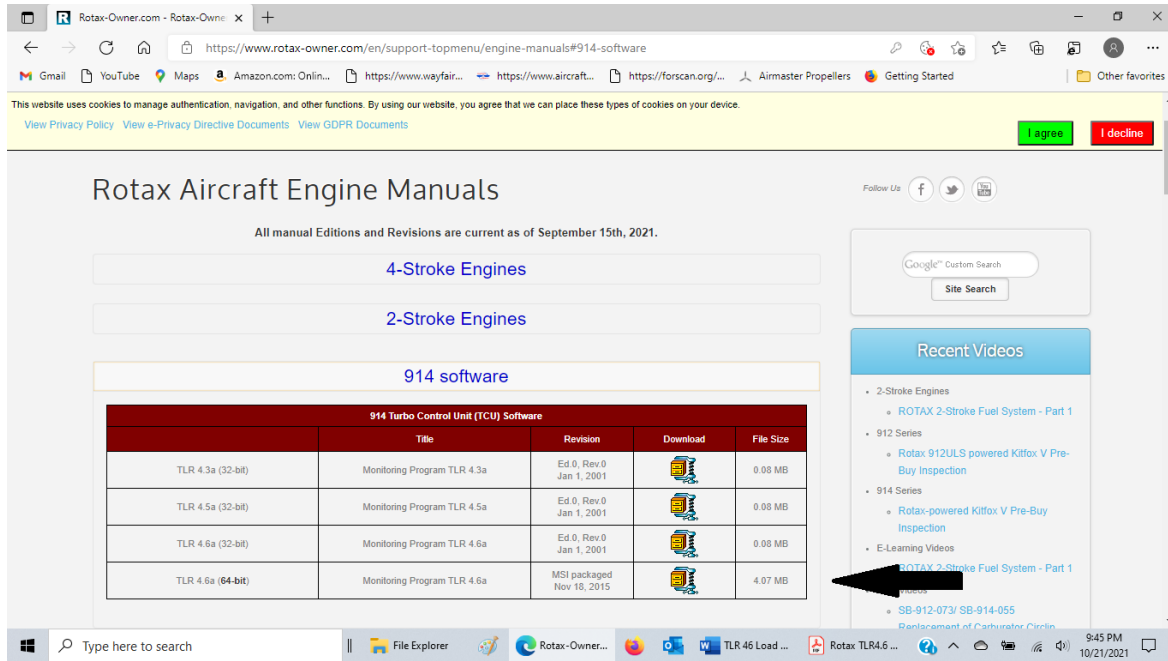
Since we have Windows 10/7 operating systems, with a Dos program interface using a USB to serial communications cable communicating with a 1990s TCU with a Dos operating system, there had to be a problem in the .cmd or .cfg files. Obviously, there was something wrong in the DosBox and TLR program serial port and or command instructions. Simple right, just fix the lines of instructions in the configuration and execute program. I wasn't sure exactly how I needed to do that, but I felt if I could access the .cmd and .cfg files in DOSBox and the TLR program I could do a line change, then save, allow DOSBox to simply reload the configuration file and test. Well, I hoped that might work. I figured I can't screw it up worse than it is. So now I have two computers (windows 7 and 10) that won't talk to my aircraft's engine. I need to figure out what lines I need to change.

Finally, out of Southern California Jim Pavlick blogged on his build site for his Sling 4 with a 914, how he got his **Windows 10 version to work**. See his blog post at: (<https://jpavlick.wordpress.com/2021/08/>). His blog confirmed a line change may just do it. I quickly fired up my HP Windows 10 laptop and I was ready to give it a try. Luckily Jim Pavlick is a computer software engineer and is fearless when it comes to programming. I would have appreciated a more detailed explanation for the likes of me, but then again, it led me to a possible solution to the command line. Jim's keen eye looked at the lines and he saw the serial command line change to program the TLR program to the right com port.

In the following pages I will show my work as completely as I can for the average builder to follow. Provided, of course, one has a TCU part number 966741 on their 914, if so, follow along:

Loading the TLR 46 program:


The first step is to log on to rotax-owner.com, then select SUPPORT- THEN ENGINE MANUALS and select 914 software and select your version. (<https://www.rotax-owner.com/en/support-topmenu/engine-manualsdownload#914-software>).



With Windows 10 and 7 select the 64 bit version and save the compressed folder to your documents (I save to my Rotax file folder.). The download instructions are on the Rotax-Owner website. Although very short on detail, it is a help.

Select the install and allow it to bypass your firewall/defender and load. I don't do a thing but what the screen says. I let it install in my C:\Programs x86 as it wanted to in the folders it wants to. It is important that DosBox and the TLR program load in the C: drive.



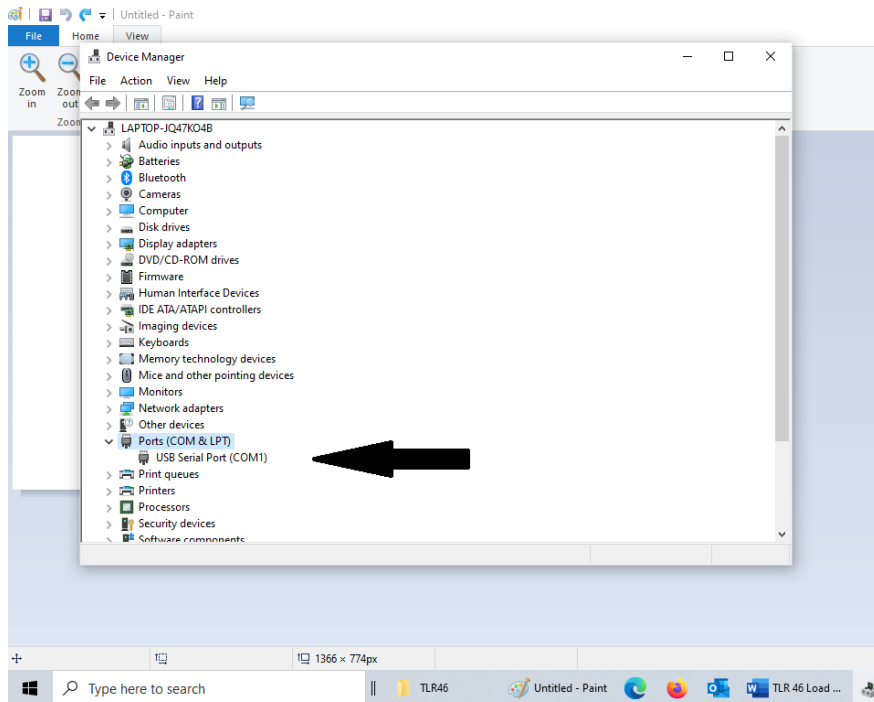
After the download, you should have an icon  on the Desktop.

I then procured a Sabrent USB to Serial Converter with the FTDI chipset. So far all of the FTDI-based USB-to-Serial-Port-Adapters are known to work. **The Sabrent comes with a DVD to load to various Windows versions.** Simply select the Windows 10 version and the appropriate .dll files or drivers should load.

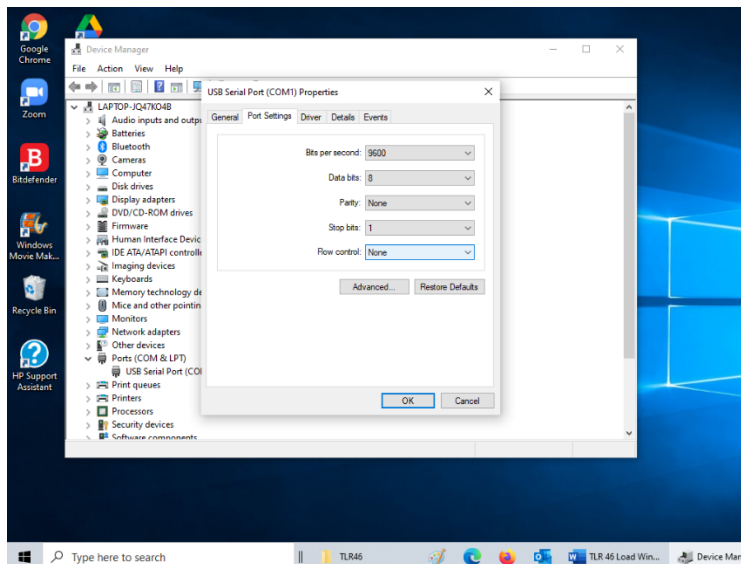


Now for the fun part. Changing/adapting the programming:

For us basic computer types here goes: After install of the Sabrent USB to serial adapter. On the desktop call up the Device Manager (type in DEVICE MANAGER in the "Type here to search" normally on the task bar or by the windows search on your desktop task bar).




You will see the Ports (Com and LPT) on your computer screen as shown above. Double click on that and the USB Serial Port (Com and a number) comes up. Click on the Tab for Settings. Select Properties and select the PORT SETTINGS tab. In the PORT SETTINGS tab change the values to: Bits Per Second to 9600, Data bits to 8, Parity to None, Stop bits to 1 and Flow control to None. Select the Advanced tab and go in and change the Com Port to 1.

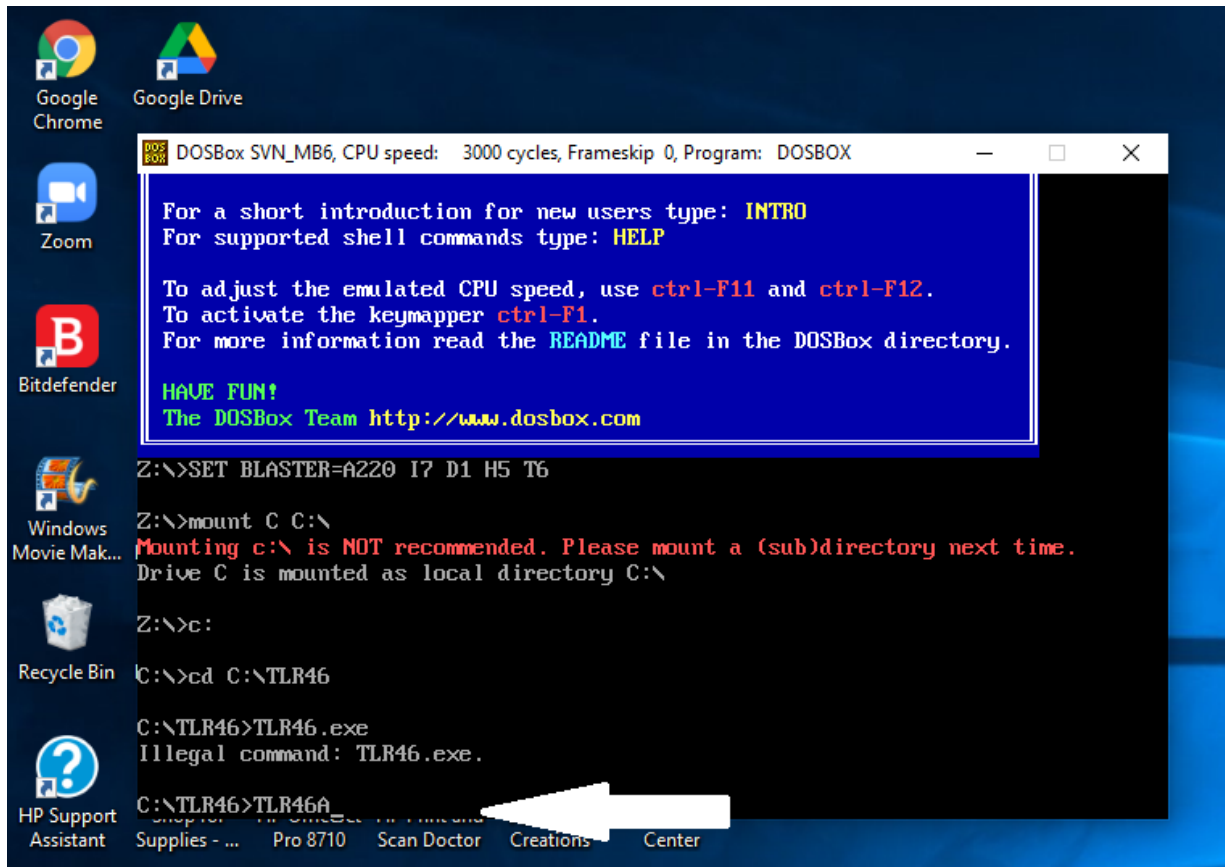


Apply the changes and get out.

Attempt to use your program now with the USB attached only. Just to see if everything loads.

This process will load a new command file hopefully. To do this:

Select the icon for TLR46 on your computer desktop.  It should load on your computer (always does on my computers). You will see the DOSBox and then the DOS prompt will show. After the prompt C:\TLR46> simply type TLR46A .



The first time you run the TLR program it will pop up a selection box that you use to set the COM port mapping in DOS box. Then TLR starts and you select the video mode, and then the COM port to use, but the COM port you select in TLR doesn't correspond to what the USB serial adapter is reporting in the Device Manager, it's the COM port in DOS Box which then maps to an actual serial port on your PC. The Configuration files are updated automatically or supposed to be. Who thinks of this stuff?

If you failed to keep the USB plugged in on the DOSBox screen you will probably see the following:
ERROR 68 PROGRAM TERMINATED.
DO NOT DISPARE. Back out of the TLR program.

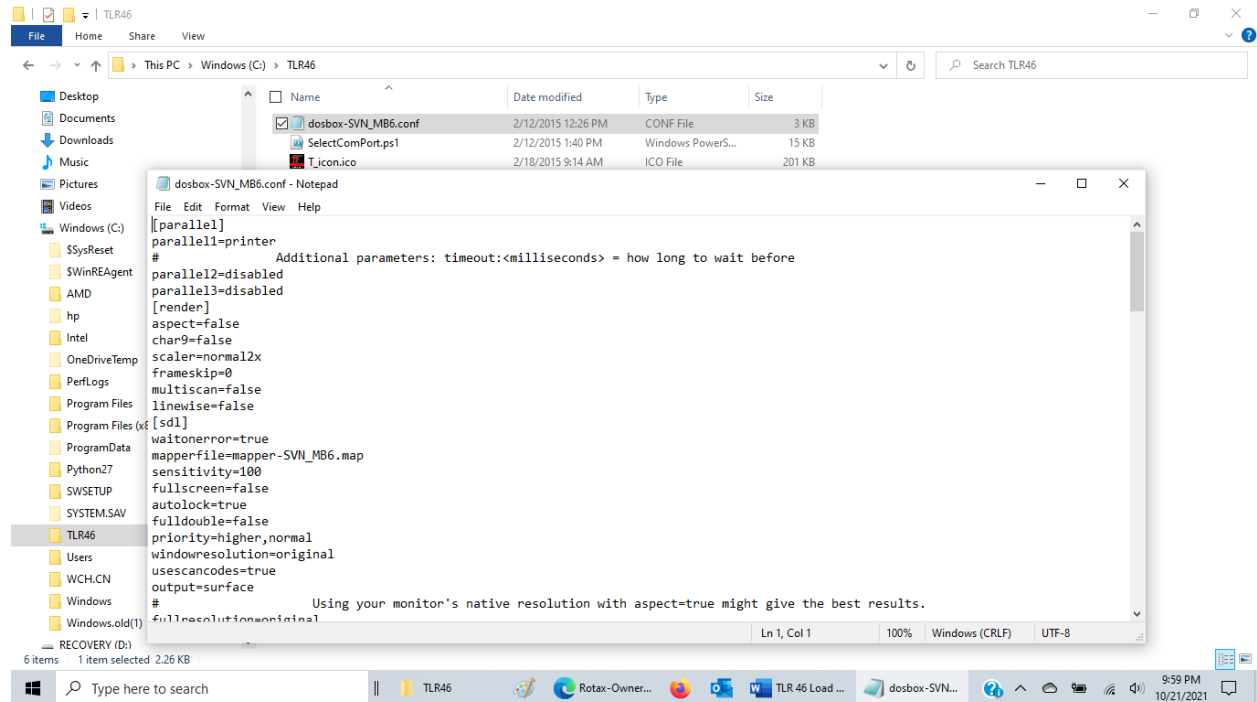
There is only a little more to do.

You must now change the configuration file for DosBox:

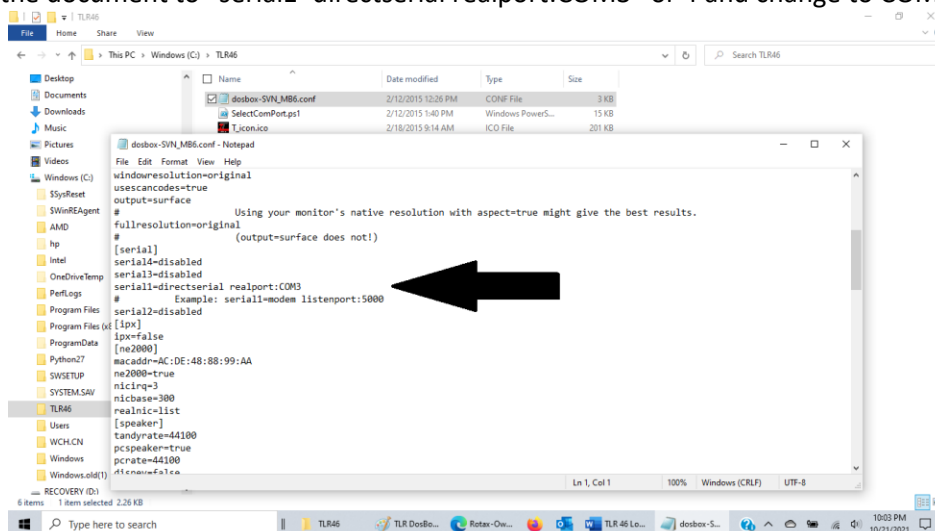
From the desktop:

I simply click on the file folder icon, then go to the computer folders. In Windows 10 normally I go to the left Quick Access Toolbar and go down to the Windows (C:) and click on it. Scroll down to the folder **TLR46** and click on that.

Under the Windows C: TLR46 select **dosbox-SVN_MB6.conf** and open with **notepad**. Like so below:



Scroll down the document to “serial1=directserial realport:COM3” or 4 and change to COM1



Save your change and back out.

You can check the change but it doesn't matter it seems as when you load the TLR program it changes the configuration file in DosBox and or the TLR program to suit your new settings. I don't know for sure.

Check for yourself:

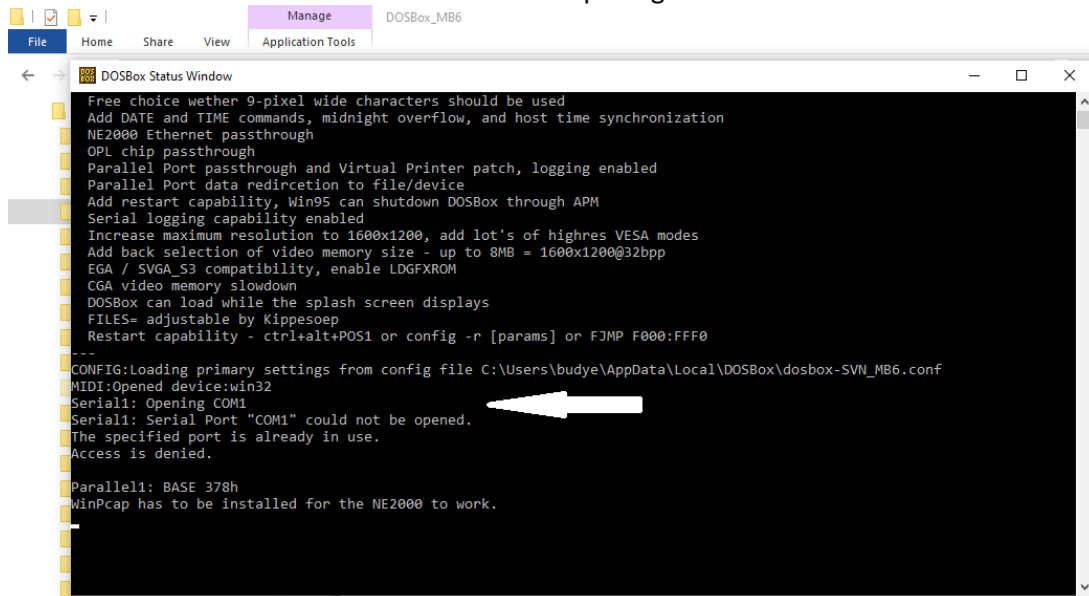
From the Quick Access Tool Bar go down and select the Windows (C:) drive.

Scroll down and select PROGRAM (x68)

Select "DOSBox_MB6"

Then scroll down to "dosbox.exe"

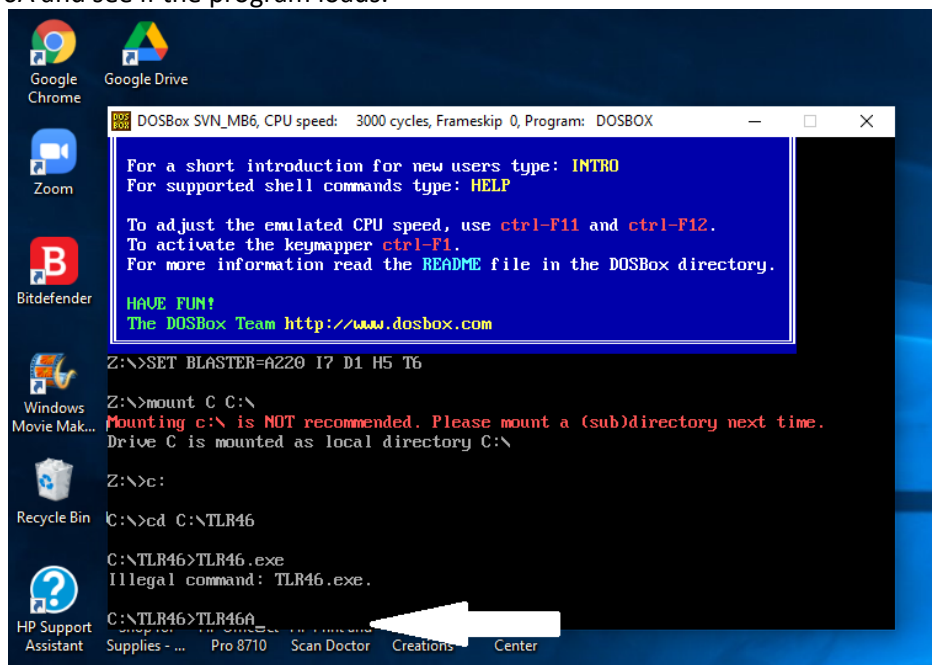
Double click on it and see if the serial is now "serial1: opening COM1"



If it does: Close out the DosBox window.

Go back to desktop and select the TLR46 icon.

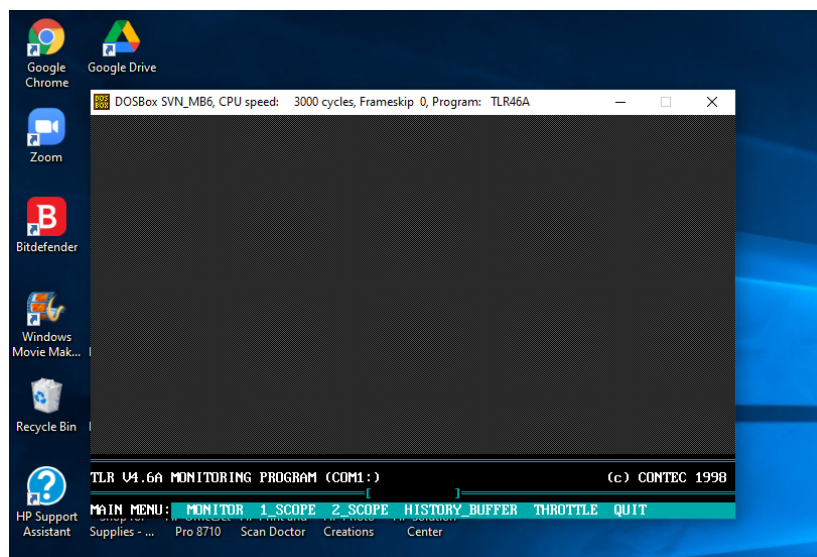
Type in TLR46A and see if the program loads.



If it works as advertised, your TLR46 program has done what mine did and believe it or not, it worked. If you haven't already done this, when the program opens select the graphics VGA, your com port, and it should boot.

If not, I go back in again to check the computer port settings took:
Since the TLR.CFG or configuration file still has the old data (or no data) simply delete this file.
To do this, again go to Windows (C:) folder again and scroll to TLR46. In TLR46 there is a TLR.CFG file, simply select and hit delete. If you are cautious and afraid of deleting anything, you can simply change the name to TLR46X.CFG or simply move the file to your documents from the TLR folder and save it as is. This configuration file keeps your instructions for the Com port, and Display but you can't read it in windows. I normally use windows notepad to open the file. Some Configuration files simply have a shortcut like "V1" or similar which makes no sense to anyone but the programmer, but it is an instruction. In the DosBox/TLR program, it will create a new configuration file for you so don't panic.

Go back and attempt to call up the program and type in the TLR46A command again and hopefully now you will see the following:



If it does:

Now it's time to load the program and attach the USB to Serial cable to your aircraft's TCU. Simply attach the USB to Serial cord to your plane's 9 pin Dsub hanging off the TCU 966741, power up the aircraft and call up the TLR46 program. Your program should be operating and have the program up and running for you to begin to program your Throttle or Monitor to set the engine information.

I usually test by selecting monitor first. Then select whatever function you wish. Remember it is DOS so point and click does not work. Simply hit the Key for the first letter of whatever function you want to use. You should attach your computer to the TCU before powering up aircraft power. Ensure the power on the aircraft stays on while using the TLR program until you exit.

Windows 7 is very similar. The procedure above does not seem to work on my Windows 7 laptop. There was a programming error between the DOSBox instruction in the location of a command file.

Loading Rotax TLR46 to Windows 7

Windows 7 loads exactly like Windows 10 from the internet. Mine was loaded by Chris manually. I made sure Windows7 Laptop was in fact a 64 bit processor. Which is identified in your Windows Accessories System. I then reinstalled the TLR 46 program exactly as you would for Windows 10 and also loaded the FTDI USB to Serial device for Windows 7.

Procedure is the same:

1. Allow the program access and allow it to load as designed.
2. Check the TLR46 icon is loaded on to your windows desktop.
3. Load the FTDI USB to Serial cable (Sabrent works) into windows 7.
4. Plug in the USB to serial into your computer USB port.
5. Select Device Manager and select the USB.
6. Input the Port Settings to 9600, 8, None, 1, None
7. Hit "Advanced" and change the Com port to 1
8. Save and Exit
9. Under the Windows C: TLR46 select dosbox-SVN_MB6.conf and open with notepad.
10. Scroll down the document to "serial1=directserial realport:COM3" and change to COM1
11. Save and Exit

What Could Go Wrong?

What could go wrong with the installation did in fact cause problems in my loading and troubleshooting of Windows 7. If the TLR46 program insists that it is the "wrong program and beeps" the dosbox execute file is looking in the wrong place for the configuration file. Simple line code investigation is about to commence.

Go to Folder Windows (C:) - TLR46 folder and delete or move the TLR.CFG file and try to reload. Reselect the TLR46 icon and reload as in step 14-18. This will replace the TLR.CFG file with new settings hopefully. If not go back and check your work. It is always the last thing you check that fixes it.

If that doesn't work, look at troubleshooting where DosBox is looking for the TLR.CFG file.

1. We now have to look into DosBox to see where the program is looking for the configuration file. In some manual installations the installer loads the files in other folders rather than just letting the program load it. In my old Windows 7 computer it looked like it loaded under my User Name. You know that thingy that has your name on it on start up or simply says "admin". Where to look is:

This PC-Windows (C:)-Program Files (x86)-dosbox.exe. You must note the difference between where DosBox is looking for the file and where the file is in your computer.

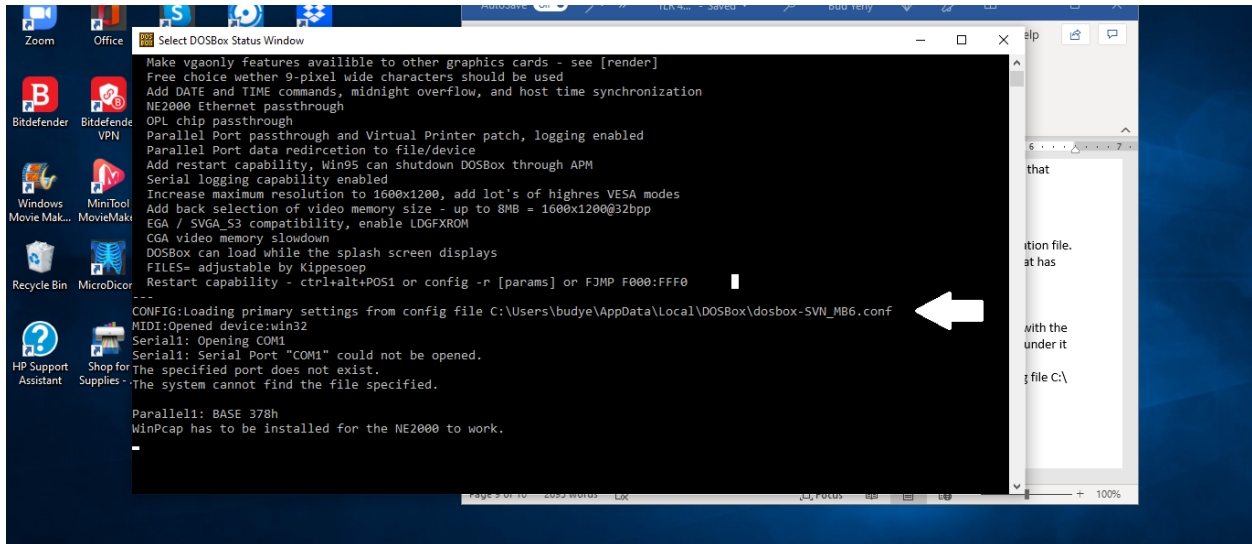
2. Click on dosbox.exe and the dos box window will open. You will see two windows one with the big brown DOSBOX then will open with the command prompt TLR46> and another just under it with a DOSBox status window. Click on the second window.

This status window has a line near the bottom that says CONFIG: Loading primary.....from config file C:\ and a location. This location has to be in the configuration file of the Dosbox-SVN_MB6.cfg file that you saw before and can fix with notepad. If these two location files point in different locations, you need to change the line in the configuration file or DOSBox to read the proper location to look for the configuration file in Windows.

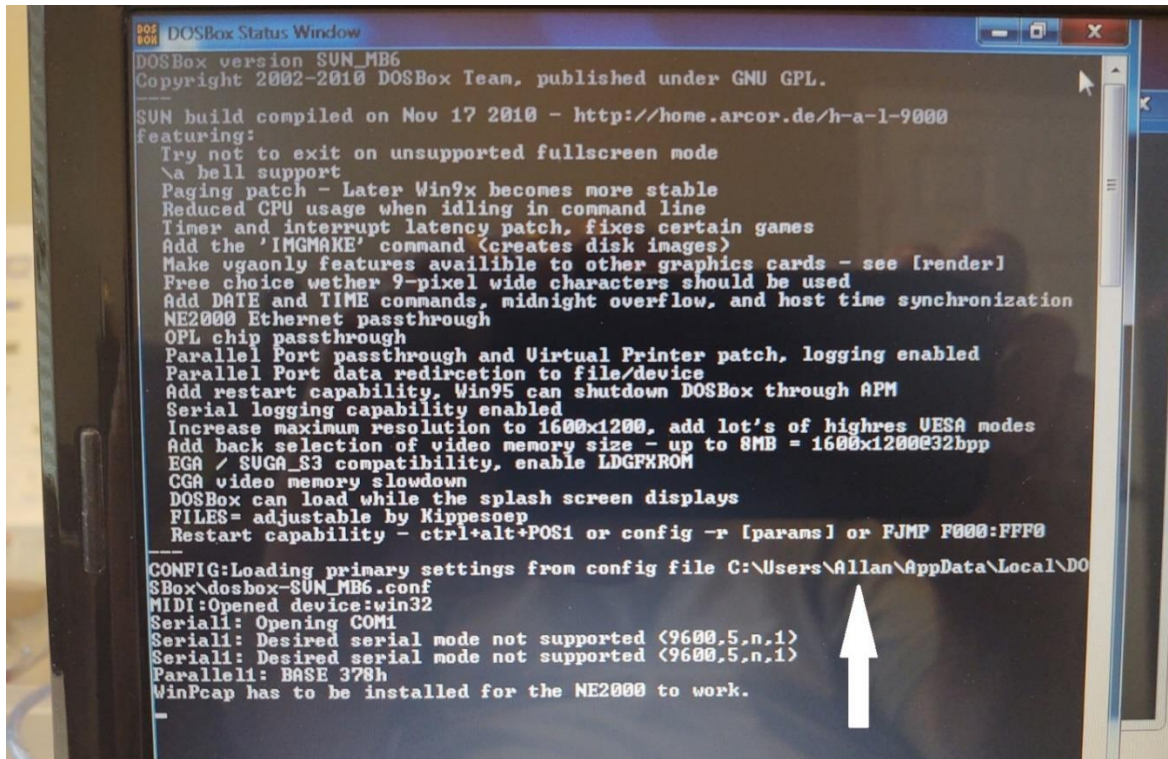
Change the text to read SVN_MB6 file to read what the DOSBox location is in the dosbox.exe file is an easy way to do this.

As an example:

This CONFIG line works and...



This one doesn't:



The line above is not pointing to USERS\LOCAL but to USERS\Allan\... I have no idea why, as Allan is not a user on my Windows 7 computer. I figure Chris had installed it manually and on reload DOSBox reloaded the same instruction. I changed the Dosbox-SVN_MB6.cfg file to the right location and then rebooted the program. As a troubleshooting note, in the DOSBox, if there is a discrepancy a warning is posted on the screen giving you a clue to the issue.

Below is a step by step with no detail for a quick TLR46A installation review:

Loading TLR46 in Windows 10/7 64 bit clean installation:

1. Go to the www.rotax-owner.com and select the program from the drop down menu.
2. Allow the program access and allow it to load as designed.
3. Check the TLR46 icon is loaded on to your windows desktop.
4. Load the FTDI USB to Serial cable (Sabrent works) into windows 10.
5. Plug in the USB to serial into your computer USB port.
6. Select Device Manager and select the USB.
7. Input the Port Settings to 9600, 8, None, 1, None
8. Hit "Advanced" and change the Com port to 1
9. Save and Exit
10. Under the Windows C: TLR46 select dosbox-SVN_MB6.conf and open with notepad.
11. Scroll down the document to "serial1=directserial realport:COM3" and change to COM1
12. Save and Exit
13. Ensure the USB to Serial cable is attached
14. On the Desktop select TLR46 icon to open the program
15. At the Dos prompt: TLR46> type in TLR46A and hit enter (line reads TLR46>TLR46A)
16. The program should start up.
17. Input in the TLR46 program the type display (VGA normally) and Com port as 1
- 18. The program should be ready to use.**

Other references one should look at also:

1. Rotax-owner.com forums have many different comments from owners.
2. Rotax-owner.com videos
3. Rotax-owner.com / support bulletins/ Technical Information/Technical articles.
4. Finally, many authors have commented on the 914. It is worth a look using a search engine such as Google or Firefox to find various authors and bloggers who have commented on their experiences.
5. If you think you completely screwed up, uninstall the TLR46/Dosbox and start over.

Remember: The old joke "If it is on the internet, it has to be true" should be considered. Not all of us are blessed with all the knowledge and information, but if we keep an open mind and look at many different ideas, we can usually come up with the solution.

Now for the rest of the Rotax 914 fleet, all I have to do is get Jim to decode the TCU Version 4.3 and 4.4 Rotax dongle so everyone doesn't have to buy a new TCU like I did. He's probably not interested. He's building an airplane.

Bud Yerly is owner of Custom Flight Creations, Inc. He is a retired USAF military fighter pilot, instructor, evaluator, IG, trained accident investigator, aeronautical engineer and has years of functional test flying experience. He was the US Europa Dealer for many years as well as a technical advisor for the factory. He is a US dealer for Airmaster Propellers and other companies. He is active in the EAA and is an EAA Technical Counsellor. He has assisted in the building and test flying of many experimental aircraft powered by many different engine types. He personally owns a 914-equipped Europa Kit Aircraft with 500 hours and has flown all types of the Europa aircraft. See his website for more techniques and information by typing in your web browser <https://www.customflightcreations.com> and you will find it although Google search puts it buried deeply in its search results so try just loading it in your web browser. Email: budyerly@msn.com