

## Note One: TBOS Tester™ in a Windows95 Environment

This note describes how to install and to use TBOS Tester™ version 4.0 on a host computer with Windows95®. Although TBOS Tester™ is not Win95 native, it can generally be executed under Windows with only minor adjustments, launched from a Win95 desktop icon and operated as any other application. The installation and operating instructions in the TBOS Tester™ manual remain valid if an MS-DOS window is opened or if the host computer is restarted in DOS mode. The following topics are discussed:

- N1.1 Installation procedures
- N1.2 Starting TBOS Tester™ for the first time under Win95 (resolving port conflicts and insufficient environment space problems).
- N1.3 Running under Win95
- N1.4 Conflicts

A Windows-specific conflict was corrected in TBOS Tester™ version 4.0b (upon pressing <Esc> to stop a test, TBOS Tester™ would quit entirely). Those wishing to operate TBOS Tester™ in a Windows environment who own v4.0 or v4.0a should obtain a program update from Telephony Software Associates, Inc. TBOS Tester™ v3.x does not exhibit this conflict.

### N1.1 Installation

The installation utility distributed with TBOS Tester™ v4.0c after May 17th, 1998 automatically detects Windows95, creates the appropriate files and places a shortcut icon on the desktop. Owners of TBOS Tester™ v4.0b or v4.0c shipped prior to this date can install their copies of TBOS Tester™ into Win95 by following a few additional steps.

<b>Procedure: Install TBOS Tester™ into a Win95 environment</b>	
<b>Step</b>	<b>Description</b>
	Use this procedure if TBOS Tester™ v4.0b or 4.0c is to be installed on the C: or D: hard drives of a Win95 system. This procedure supersedes Section 2.1.2 of the TBOS Tester™ manual.
1.	Verify that the write protect tab on the original TBOS Tester™ distribution diskette is in place to guard against accidental erasure.
2.	Place the distribution diskette in a floppy drive.
3.	Click on the Win95 "Start" button and choose "Run..."
4.	In the dialog box, type the floppy disk drive letter followed by a colon and a backslash. Then type the word "install", followed by a space, followed by the letter of the hard drive on which TBOS Tester™ is to be installed. Then click on the "OK" button.  <b>Example:</b> To install TBOS Tester™ on the C: drive from floppy drive A:, type this command in the Run... dialog box:  <code>A:\install c:</code>

<b>Procedure: Install TBOS Tester™ into a Win95 environment (continued)</b>	
<b>Step</b>	<b>Description</b>
5.	<p>The "Install" utility should be launched. Follow the simple instructions and installation progress notes that appear on screen.</p> <p><b>NOTE:</b> the display may be a window instead of a full screen. If so, press &lt;Alt-Enter&gt; or click the maximize button in the upper right corner of the window to make the screen easier to read.</p>
6.	<p>When installation is complete, close the "Install" window by pressing &lt;Alt-F4&gt; or clicking the close button in the upper right corner.</p>
7.	<p>Store the distribution diskette in a safe place.</p>
8.	<p>TBOS Tester's installation utility (v1.05 or later, for orders after 5/17/98) automatically searches for Windows95 (specifically, the directory \windows\desktop) and finding it places a shortcut icon for TBOS Tester™ on your desktop. Examine the desktop for an icon labeled "TBOS Tester". If one is present, skip to Step 13.</p>
9.	<p>If a shortcut icon for TBOS Tester™ is not present on the desktop, perform Steps 10 and 11 to modify the file "tbos.bat" for use with Win95, to create the shortcut and to specify program properties.</p>
10.	<p>In a DOS environment TBOS Tester™ is started by typing TBOS and pressing &lt;Enter&gt;. This command runs a small batch file called TBOS.BAT and then invokes the main TBOS Tester™ program (TBOSv4.EXE). The batch file sets environment variables that tell TBOS Tester™ to use certain subdirectories to read and write various support files. (This is a housekeeping measure implemented because TBOS Tester™ now has on the order of 200 files to work with, mostly help and configuration files.)</p> <p>In Win95, program properties can specify a batch file to be run prior to running an executable file, which is started by double clicking a desktop icon. The file TBOS.BAT automatically created earlier in the installation process must be modified slightly to accommodate Win95. To do this, complete Steps 10a through 10f.</p>
10a	<p>Open Windows Explorer and find the file named TBOS.BAT.</p> <p><b>HELP</b> Go to the start menu and select "Programs". Select "Windows Explorer" located at the bottom of the submenu. A dialog box titled "EXPLORING - (C:)" should appear. In the list on the left side of the dialog box, locate the folder icon labeled "TBOS". Click <b>once</b> and observe the right hand window of the dialog box change to "Contents of 'tbos'". You should see several files and folders. Click <b>once</b> on the icon named "tbos" whose type is "MS-DOS batch file". If file extensions are shown the file name will be tbos.bat.</p> <p><b>NOTE</b> If file sizes and types are not shown in "Contents of 'tbos'" open the <u>V</u>iew menu at the top of the dialog box and choose <u>D</u>etails.</p>

<b>Procedure: Install TBOS Tester™ into a Win95 environment (continued)</b>	
<b>Step</b>	<b>Description</b>
10b	With the TBOS batch file selected, open the <u>F</u> ile menu from the choices at the top of the window. Then choose <u>E</u> dit from the submenu. Note this is <i>not</i> the same as choosing the main <u>E</u> dit menu located next to <u>F</u> ile.
10c	A second window should appear entitled "tbos - Notepad". The following six lines of text should be displayed (the drive letter may be d: instead of c:).  <pre>echo off if exist c:\tbos\install.bat del c:\tbos\install.bat set tcfg=c:\tbos\configs set tlog=c:\tbos\logs set thlp=c:\tbos\help tbosv4 %1 %2 %3 %4 %5 %6 %7 %8 %9</pre>
10d	Delete the second line and the last line.  <b>HELP</b> Move the cursor (probably a blinking vertical bar or an "I"-beam) to the beginning of the words "if exist". Click and hold the left mouse button. Drag the cursor down so it is positioned at the beginning of the third line; this should cause the second line to be highlighted. Now release the mouse button. <b>Note:</b> No letters in the third line should be highlighted. Now choose <u>E</u> dit from the menu at the top of the Notepad window (not the Exploring..." window), and choose Delete from the submenu. The "if exist..." line in the batch file should disappear and the second line now read "set tcfg=c:\tbos\configs". Select the last line of the batch file ("tbosv4 %1...") and delete it in the same manner.
10e	Save the modified batch file.  <b>HELP</b> Choose <u>F</u> ile from the menu options at the top of the Notepad window ( <i>not</i> the "Exploring -tbos" window!), then choose <u>S</u> ave from the submenu.
10f	Close the Notepad window. This should return to the window titled "Exploring - tbos".  <b>HELP</b> Choose <u>F</u> ile and then <u>E</u> xit, or click on the window closure button (an X in a box) at the upper right corner of the <i>Notepad</i> window.
11.	Steps 11a through 11p will guide you through the process of specifying program properties. Primarily, this will tell Win95 to run the batch file you just modified prior to executing the main TBOS Tester™ program. Other items such as whether TBOS Tester™ opens as a window or in full screen mode, whether a screen save is enabled, and the shortcut icon appearance are also specified.

<b>Procedure: Install TBOS Tester™ into a Win95 environment (continued)</b>	
<b>Step</b>	<b>Description</b>
11a	Select the file tbosv4.exe from the contents list by clicking on its icon <i>once</i> . Note: do <i>not</i> select the file tbos.bat. If file extensions are not listed, the icon will be named "tbosv4" and have the type "application".
11b	From the <u>F</u> ile menu choose <u>P</u> roperties, or click the right mouse button and choose <u>P</u> roperties. A dialog box should appear entitled "tbosv4 - Properties" (or tbosv4.exe - properties).
11c	Click on the second tab from the left labeled "Program".
11d	The top entry should read TBOSV4 and be highlighted. Change the name by editing the entry to read "TBOS Tester".  <b>HELP</b> Press the delete or backspace key to remove the current entry. Then type "TBOS Tester" in the field. Do <i>not</i> press <Enter> yet, or the properties dialog box will be closed. If this happens, return to step 11a.
11e	Verify that the Cmd line box entry reads (assuming the C: drive is in use; substitute the correct drive letter as appropriate):  C:\TBOS\TBOSV4.EXE
11f	Move to the entry box titled "Batch file:" by pointing and clicking on the entry box next to <u>B</u> atch file, or by pressing the <Tab> key until the cursor is in that box. Type the following (assuming the C: drive is in use; substitute the correct drive letter as appropriate):  C:\TBOS\TBOS.BAT
11g	Point and click in the check box labeled "Close on exit"; a check mark should appear in the box. This will save you the trouble of manually closing the TBOS Tester™ window when you Quit the program.
11h	( <i>Optional</i> ) Click on the " <u>C</u> hange Icon" button and select the icon that will appear on the desk top as the short cut to start the session. Hit the <u>B</u> rowse button to see more options. Files that <i>may</i> contain icons will be listed. <i>Recommended:</i> choose the file SHELL32.DLL; toward the end of the icons is a paper document icon with two "T"s on it that is somewhat appropriate.) Click okay (of the "Change Icon" window!) once the desired icon is selected.
11i	Click on the tab labeled "Font".
11j	Select the 8 x 12 size, which will show the entire TBOS Tester™ screen in as large a window as possible. (You may have to scroll down the font size choice window to reveal "8 x 12". When it is visible, click on "8 x 12" to highlight it as the desired choice.)
11k	Click on the tab labeled "Screen".

<b>Procedure: Install TBOS Tester™ into a Win95 environment (continued)</b>	
<b>Step</b>	<b>Description</b>
11l	If you want TBOS Tester™ to appear as a full screen instead of a window when it starts up, click the button next to "Full-screen" in the "Usage" area. Note you can switch between a window and a full-screen display later on by pressing <Alt-Enter>.
11m	De-select the toolbar display option by clicking on the check box next to "Display toolbar" located in the "Window" area.
11n	Click on the last tab, labeled "Misc". Turn off the screen saver by clicking the check marked box labeled "Allow screen saver" in the "Foreground" area.
11o	Click the "Apply" button and then the "Okay" button to close the Properties dialog box.
11p	Notice a new icon labeled "tbosv4" has appeared in the "Contents of 'tbos'" whose type is "Shortcut to MS-DOS". Click <b>once</b> on this item, and then while the cursor is located over the file name click a second time. The name should now be editable. Change it to "TBOS Tester" by pressing the delete (backspace) key to remove the current entry. Then type "TBOS Tester". Press <Enter> to accept the name change.
11q	Drag the shortcut icon onto the desktop.  <b>HELP</b> Point to the shortcut icon, press and hold the mouse button. Drag the icon away from the "exploring - tbos" window and on to the desktop. Release the mouse button.
12.	Close the Windows Explorer.  <b>HELP</b> Choose <u>F</u> ile and then <u>E</u> xit, or click on the window closure button (an X in a box) at the upper right corner of the window.
13.	Test the installation by double clicking on the TBOS Tester shortcut icon now resident on the Win95 desktop. TBOS Tester™ should launch successfully. If error messages occur, refer to the next section (N1.2) regarding first time startup of TBOS Tester™.
14.	This completes the software installation procedure. If necessary, refer to §2.2 of the TBOS Tester™ User's Manual for hardware installation procedures.

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## N1.2 Starting TBOS Tester™ under Windows for the first time

When invoking TBOS Tester™ for the first time under Windows, two irregularities may occur. They are:

- A serial port conflicts, generally indicated by the appearance of a “device conflict” message;
- B insufficient environment space (common symptoms include a blank screen, and error messages relating to TBOS.PRO and TBOS.CFG).

If either of these irregularities occur, refer to the following paragraphs.

### **A. Serial port conflicts .....**

Often a potential conflict exists between the TBOS serial port and other serial devices such as a mouse or a modem (if both are assigned to COM1). This *may* result in the dreaded Windows “blue screen” that announces such resource conflicts, or problems in operation such as rapidly accumulating telemetry errors. TBOS Tester™ requires its own serial port (COM1 through COM4). This port can share an interrupt request (IRQ) with another COM port provided that the serial device (e.g. a modem) attached to that port will not be used at the same time TBOS Tester™ is running.

TBOS Tester™ is configured as shipped to use COM1 and standard IRQs. When starting TBOS Tester™ for the first time, if a conflict message appears it may be indicating a COM port conflict. Choose “Y” to continue and refer to the procedures at §2.4 of the User's Manual to specify the correct serial port.

The conflict screen may instead be indicating a *potential* IRQ conflict. If, for example, TBOS Tester™ has been assigned COM4 and the host computer is equipped with a modem on COM2, a potential conflict exists because both ports share interrupt #3. This is of no concern if the modem will not be used whenever TBOS Tester™ is operating and vice versa. If the potential conflict is bothersome and if your computer allows alternate IRQ assignment for serial ports, consider using IRQ5 for the extra COM port. To do this, you may have to modify Windows95 (using the control panel system settings) to recognize the non-standard IRQ for that port. Once this is accomplished, TBOS Tester™ must then be informed with command line options that the non-standard IRQ is in use. Refer to the procedure “Verify and change IRQ assignments” that appears later in this note.

### **B. Insufficient Environment Space .....**

When TBOS Tester™ is invoked, an environment space problem is likely if you see:

- a completely blank screen and/or a frozen keyboard;
- error messages on start-up such as “error opening TBOS.PRO” or “error opening TBOS.CFG”;
- an inability to open HELP files;
- a “No config files!” message in response to LOAD:FILE.

Should any of these be observed, QUIT TBOS Tester™ at once. (If the keyboard is frozen, restart your computer). The file CONFIG.SYS must be amended to include a sufficient environment space setting. Use the procedure entitled “Edit CONFIG.SYS” that appears later in this note.

<b>Procedure: Verify and change IRQ assignment</b>	
<b>Step</b>	<b>Description</b>
<b>Part A: Reconfigure hardware</b>	
A1	The port hardware (or in some cases your computer's BIOS) must first be reconfigured to use the non-standard IRQ (number 5). Refer to instructions for your computer or the serial port expansion board. Once this is done, restart your computer.
<b>Part B: Reconfigure Windows</b>	
B1	Open the Win95 Control Panel folder (START → Accessories → Control Panel)
B2	Open the "System" folder.
B3	Click on the tab labeled "Device Manager"
B4	Click on "Ports"; the list of communications and printer ports should appear.
B5	Double-click on the COM port being assigned the non-standard IRQ (e.g. COM4).
B6	Click on the tab labeled "Resources"
B7	The dialog box should list "Interrupt Request" as one of the resource types, followed by a setting. If Win95 has detected the non-standard IRQ the setting will be "05" (or other IRQ assigned). If this is the case, skip to Step B16.
B8	Otherwise, the setting will probably reflect the standard IRQ (03). Click on the check box next to "Use automatic settings" to de-select that option. The "Change Setting" button should change from grayed out to active.
B9	Click on "Interrupt request" (under resource type) and then click the change setting button.
B10	If a dialog box entitled "Edit Interrupt request" appears, skip to Step B15.)
B11	The message "changes not allowed" may appear at this point. If so, clear the message.
B12	Write down the settings for Input/Output range (such as 02E8 - 02EF).
B13	Click the pull down arrow to the right of the field labeled "Settings based on" and select a different basic configuration (e.g. 6).
B14	Return to Step B9.
B15	When the dialog box entitled "Edit Interrupt request" appears, use the up/down arrow buttons to the right of the Value box to change the value to "05" (assuming this is the IRQ number for which you earlier configured the port hardware). If the desired IRQ number is not listed, Cancel the operation, return to Step B13 and try a different basic configuration number.
B16	Note the "conflict information" field at the bottom of the Edit IRQ dialog box. If the message indicates no conflicts, skip to Step B18.

<b>Procedure: Verify and change IRQ assignment (continued)</b>	
<b>Step</b>	<b>Description</b>
B17	If a device conflict is listed, a different IRQ may be required. Select a different non-standard IRQ that Win95 allows and which has no conflicts. Once the settings are changed, repeat Part A and reconfigure the port hardware to use the assigned IRQ. Then go to Part C.
B18	Close the dialog boxes by clicking the "OK" button on each successive window. If prompted, you may have to restart your computer for the changes to take effect.
B19	Proceed with Part C to inform TBOS Tester™ of the non-standard IRQ assignment.
<b>Part C: Reconfigure TBOS Tester™</b>	
	This version of TBOS Tester™ requires command line options to select non-standard IRQs. To do this:
C1	Click <i>once</i> on the TBOS Tester™ desktop icon (don't double-click or the program will start).
C2	Press <Alt-Enter> to open the "Properties" dialog box.
C3	Click the tab labeled "Program".
C4	The second field, entitled "Cmd line:" should be similar to C:\TBOS\TBOSV4.EXE
C5	Edit the command line instruction to reflect the non-standard IRQ as follows:
C6	Move the cursor to this field; the pointer should change from an arrow to an I-beam.
C7	Move the I-beam to the blank portion of the field to the right of "TBOSV4.EXE" and click once.
C8	Type a space, then a dash, then I4, then a space, then 5. This adds to the TBOS Tester™ command line the instruction to use IRQ5 in conjunction with COM4. (This step should be modified if different COM port/IRQ settings are involved).
C9	Click the "OK" button to close the properties window.
C10	TBOS Tester™ will now use the non-standard IRQ in conjunction with the serial port so modified. Note that the MISC:SETS menu must reflect the COM port in question. Note also that if TBOS Tester™ is invoked from the DOS prompt the Win95 shortcut is bypassed. In this case, invoke the program as described in the User's Manual (e.g., at the C:\TBOS prompt type TBOS -I4 5).
C11	This completes the IRQ modification procedure.

<b>Procedure: Edit CONFIG.SYS</b>	
<b>Step</b>	<b>Description</b>
1	Invoke "Notepad", the Win95 text editor (START → Programs → Accessories → Notepad).
2	Choose the Open option from the "File" menu. The "Open" dialog box should appear.
3	The field labeled "Look in:" at the top of the dialog box may contain "Desktop". In any case, click on the down-arrow button at the right of that field. A list including your computer's hard disk (e.g. "Fixed Disk (C:)") should appear.
4	Click on your hard disk's name; it should now appear in the "Look in:" field.
5	At the bottom of the dialog box the field labeled "Files of type:" may read "Text Documents". If necessary, click on the down-arrow button at the right of the field and select "All Files (*.*)" from the list.
6	Look at the folder contents for a file called CONFIG.SYS (use the horizontal scroll bar, if necessary, to see the all of the file names. If the file is present, skip to Step 23.
7	If the file named "CONFIG.SYS" does not appear, the file may be hidden or located in another folder. Try the following steps:
8	a) type CONFIG.SYS in the file name field and click the "Open" button. If the file is present a window entitled "Notepad - CONFIG.SYS" will appear. Skip to Step 24.
9	b) if the message <div style="text-align: center;">           C:\CONFIG.SYS            This file could not be found.            Make sure the correct path and file name are given.         </div> appears, the CONFIG.SYS file is located in another folder. Note, however, if the path name is different (e.g. A:\config.sys or C:\Program files\config.sys) the wrong folder or drive was selected when Step 8 was attempted. If this is the case, clear the error message and return to Step 4.
10	c) Find the file CONFIG.SYS on your hard disk using Windows Explorer, as described in Steps 11 through 21.
11	Cancel the "Open" dialog box but leave Notepad active.
12	Start Windows Explorer (START > Programs > Windows Explorer)
13	Click on <u>T</u> ools from the main menu.
14	Click <u>F</u> ind.
15	Click "Files or Folders". A dialog box entitled "Find: All Files" should appear.
16	Click once in the field titled " <u>N</u> amed:".
17	Type CONFIG.SYS as the file to search for.

<b>Procedure: Edit CONFIG.SYS</b>	
<b>Step</b>	<b>Description</b>
18	The field "Look in" should contain the name of your hard disk. If necessary, click the down-arrow button to the right of that field to display a list of search targets. Then select the hard drive.
19	Be sure a check appears next to "Include <u>s</u> ubfolders"; if not, click on the checkbox.
20	Click the "Find now" button. Explorer should search the entire hard disk for all occurrences of "CONFIG.SYS" and list them.
21	Note the information listed under "In folder". This is the location of the file to be modified.
22	Return to Notepad and open the folder that Explorer indicated contains the file CONFIG.SYS.
23	Double click on the file name "CONFIG.SYS" to open it. A window entitled "CONFIG.SYS - Notepad" will appear.
24	Add a new line to the end of the file (click on the end of the currently last line, and press <Enter> to start a new line).
25	Type the new line:  <b>shell=c:\command.com /P /E:768</b>  Note the space before each of the "/" characters. This assumes TBOS Tester™ is installed on the C: drive; modify the command if a different drive letter is being used.
26	Save the changes by selecting the <u>S</u> ave option from the <u>F</u> ile menu (of the Notepad window!).
27	Choose <u>E</u> xit from the <u>F</u> ile menu or click the close window button at the upper right corner of the window.
28	Restart your computer to make the changes effective.
29	Open TBOS Tester™ and verify that the environment space problems are no longer evident.
30	This completes the Procedure "Edit CONFIG.SYS".

## N1.3 Running TBOS Tester™ under Windows

### ***Enabling the character scan cursor***

The character scan cursor is a screen feature that indicates which TBOS character (set of eight points) is currently being scanned. The indicator is routinely disabled if TBOS Tester™ detects a Windows environment in order to reduce processing overhead. However, if your computer is fast enough the character scan cursor can be enabled without adversely affecting TBOS Tester's operation.

To do this, add the command line option “-scan” to the TBOS Tester™ shortcut properties. Refer to the next section (Using other command line options) for detailed instructions.

### ***Using other command line options***

As described in the User's Manual at §9.1, this version of TBOS Tester™ includes a variety of command line options that modify program operation and/or override menu selections. Command line options are easily implemented when TBOS Tester™ is invoked from a DOS prompt. However, TBOS Tester™ is normally started under Win95 by clicking on a shortcut icon, which makes the use of command line options problematic.

If command line options are needed, these options are available:

- Open a DOS window or restart in DOS mode.
- Invoke TBOS Tester™ from the START Menu. Choose Run... and type in C:\TBOS\TBOS followed by the command line options you need, just as if you were operating from a DOS prompt. If a message appears about trouble finding files or folders, choose to continue anyway.
- Add the command line option(s) to the Win95 shortcut properties. This is the recommended approach for command line options that will be used each time TBOS Tester™ is invoked. To do this:
  1. Click *once* on the TBOS Tester™ desktop icon (don't double-click or the program will start).
  2. Press <Alt-Enter> to open the “Properties” dialog box.
  3. Click the tab labeled “Program”. The second field, entitled “Cmd line:” should be similar to C:\TBOS\TBOSV4.EXE
  4. Edit the command line instruction to reflect the desired command line options. Use the syntax described in the TBOS Tester™ manual at §9.1, the readme.doc file, or the relevant TBOS Tester™ on-line help files.
  5. Click the “OK” button to close the properties window. The command line options you specified will now be implemented each time you use the desktop shortcut to invoke TBOS Tester™. Note that should you invoke TBOS Tester™ from a DOS prompt these command line options will be bypassed.

**Note:** Command line options consume environment space. If any of the irregularities described earlier at N1.2(B) occur following the addition of command line options, follow the procedures described there to increase environment space.

## **Window vs. full screen**

TBOS Tester™ is configured to operate in “full screen” mode as shipped. However, you can operate TBOS Tester™ from a window, if desired. (Note: full screen looks the same as a DOS environment; it is not the same as a maximized window.) To switch between full screen and windows simply press <Alt-Enter> at any time.

In window mode some of the TBOS Tester™ colors and screen attributes (such as the blinking menu label for an active function) are modified or suppressed. TBOS Tester™ also tends to run more slowly in a window. Be aware that in this version of TBOS Tester™, certain timing properties are adversely affected if TBOS Tester™ is running in a background window. **Run all tests from an active window (or in full screen mode).**

You can modify the window attributes such as the font (which affects size, aspect ratio and readability), whether the program opens in full screen or window mode, whether the window automatically closes when you QUIT TBOS Tester™, etc., by modifying the shortcut properties. Click once on the shortcut icon and press <Alt-Enter> to open the properties settings options.

## **N1.4 Windows conflicts**

### **Monitor Mode**

Running monitor mode tests under windows may pose problems if the host computer is relatively slow and the TBOS system under test has rapid polling and response rates. Unlike the other test modes (in which TBOS Tester™ plays an active role in generating TBOS messages), Monitor Mode requires TBOS Tester™ to be ready for messages whenever they occur. The extra processing overhead imposed by windows can interfere with testing if the messages occur too frequently. Symptoms include frequent telemetry errors and data collisions reported by TBOS Tester™. The problem is generally worse in a window than when running in full screen mode.

If this is observed, open the **Properties** for TBOS Tester™. This can be done while the program is active (even if a test is in progress) by clicking on the icon in the upper left corner of the TBOS Tester™ window and choosing “**Properties**” from the menu. If the program is not invoked, click the right mouse button on the startup icon.

Once the properties dialog box is open, click the right-hand most tab, labeled “Misc”.

Adjust the “Idle sensitivity” slider to the left (low) setting. Click “**Apply**” to make the change effective.

This will result in Win95 devoting more attention to TBOS Tester™ and less to other applications, potentially solving the problem. Remember you can clear the error counters in TBOS Tester™ by pressing <Alt-E>.

If the problem remains, try restarting your computer in MS DOS mode and invoke TBOS Tester from a DOS prompt as described in the User's Manual. Note you will need to switch to the TBOS directory first. At the C:\ prompt, type **cd \tbos** and press <Enter>. The prompt should change to C:\TBOS. Then type **tbos** (plus any command line options) and press <Enter>.

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When you QUIT TBOS Tester™ and return to the C:\TBOS prompt, type EXIT and press <Enter> to restart Windows95.

### ***Autodialer***

The autodialer feature relies on hardware control of the modem (specifically toggling DTR to hang up). Windows intercepts this command and prevents the autodialer from operating correctly. If the autodialer feature is needed, operate TBOS Tester™ in a DOS environment by restarting the computer in DOS mode (a Start button option).

### ***High Resolution (hirez) Timer***

The standard clock interval in an IBM-PC is 55 milliseconds, which is perfectly adequate for most applications. The TBOS protocol, with its 200 mSec timeout interval and typical poll/response cycles on the order of 10 mSec, is optimally served with timing options more precise than  $\pm 55$  mSec, especially in test applications. A high resolution timer has been implemented to enable timing options to be specified at 1 mSec increments.

Win95 will not service certain of the timer routines adequately if a session is running other than the foreground. In particular, non-zero values for poll delay and respond delay are magnified significantly. (A hirez timer tick is interpreted as a standard clock tick, so delay values are roughly 55 times as long as they should be). Avoid using delay values other than zero in multiple sessions, where background operation of all windows is recommended to maintain balanced polling rates among the sessions. Fortunately, multiple session operation is generally used in dedicated monitoring applications where timing accuracy is not critical.

If you encounter difficulties with Win95 or with TBOS Tester™ that this note does not address, please contact TSA for assistance on (919) 553-8267, or e-mail tsa@aol.com.

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## **Notes**