Green is life tmg

ABN 43 064 478 842

231 osborne avenue clayton south, vic 3169
PO box 1548, clayton south, vic 3169
t 03 9265 7400 f 03 9558 0875
freecall 1800 680 680
www.tmgtestequipment.com.au

Test & Measurement

- sales
- rentals
- calibration
- repair
- disposal

Complimentary Reference Material

This PDF has been made available as a complimentary service for you to assist in evaluating this model for your testing requirements.

TMG offers a wide range of test equipment solutions, from renting short to long term, buying refurbished and purchasing new. Financing options, such as Financial Rental, and Leasing are also available on application.

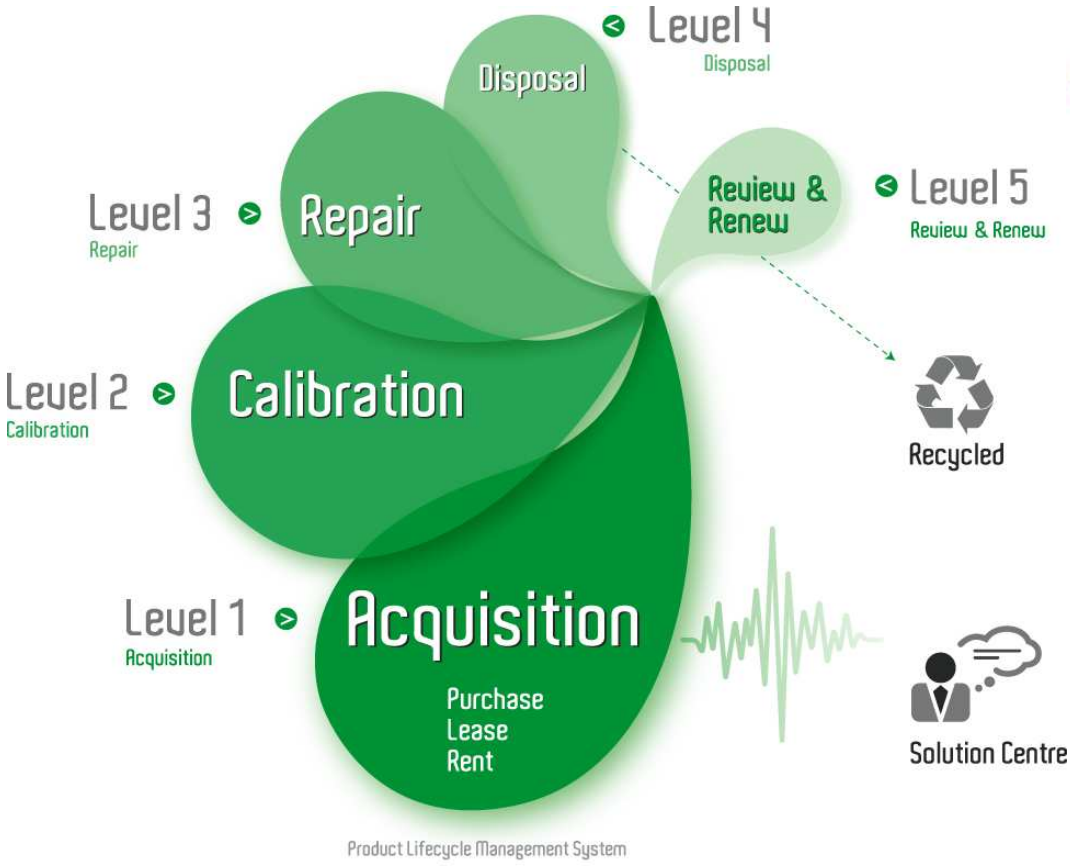
TMG will assist if you are unsure whether this model will suit your requirements.

Call TMG if you need to organise repair and/or calibrate your unit.

If you click on the "Click-to-Call" logo below, you can all us for FREE!

TMG Corporate Website **TMG Products Website**

Click-to-Call
TMG Now



Disclaimer:
All trademarks appearing within this PDF are trademarks of their respective owners.

FTB-300

Universal Test System

Instruction Manual

Fifth Edition

P/N: MAN-073-I .5ACE

If the equipment described herein bears the CE symbol, the said equipment complies with the European Community Directive and Standards found in the Declaration of Conformity.

If the equipment described herein bears an **FCC** *statement, the said equipment complies with the relevant Federal Communications Commission standards.*

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior written permission of EXFO Electro-Optical Engineering, Inc. (EXFO).

Information provided by EXFO is believed to be accurate and reliable. However, no responsibility is assumed by EXFO for its use nor for any infringements of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent rights of EXFO.

EXFO's Commerce And Government Entities (CAGE) code under the North Atlantic Treaty Organization (NATO) is 0L8C3.

The information contained in this document is subject to change without notice.

© 1999 EXFO Electro-Optical Engineering, Inc.

Words which we consider as trademarks have been identified as such. However, neither the presence nor absence of such identification affects the legal status of any trademark.

Dieses Handbuch ist ebenso auf deutsch erhältlich.
Este manual está igualmente disponível em português.
Este manual también está disponible en español.
Le présent manuel est également disponible en français.

October 1999

Contents

Certification Information

F.C.C. Information to User

This unit has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 (Subpart B) of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the unit is operated in a commercial environment. This unit generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this unit in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

WARNING

Changes or modifications not expressly approved by EXFO Electro-Optical Engineering, Inc. could void the user's authority to operate the unit.

➤ Shielded remote I/O cables, with properly grounded shields and metal connectors, are recommended to be used in order to reduce radio frequency interference which may emanate from these cables.

Independent Laboratory Testing

This unit has undergone extensive CE certification testing both internally, at EXFO, and externally, at an independent, qualified laboratory. All pre-qualification tests were performed at EXFO while all final tests were performed at UltraTech Engineering Labs, Inc., a renowned test laboratory from Mississauga, Canada. This guarantees the unerring objectivity and authoritative compliance of all test results.

CE Information to User

This unit has been tested and found to comply with the limits for a Class A digital device. Please see the Declaration of Conformity.

1 Introduction

Presenting the FTB-300 Universal Test System

As communication technologies are evolving rapidly, testing requirements are also becoming more complex and diversified. In response to this, the FTB-300 Universal Test System (UTS) provides a simple yet efficient way to perform multiple, advanced test operations in outside plant installations as well as maintenance and troubleshooting.

The portable FTB-300 UTS combines a powerful platform with a series of high-performance, field-interchangeable modules. Housing up to three modules simultaneously, the FTB-300 UTS can integrate most of the existing outside plant fiber-optic test applications. The system is PC-based and runs all test applications in the Windows 95 operating system, providing you with all the processing power required for field testing.

Modularity and Versatility

The main advantage of the FTB-300 UTS modular platform is that it can be configured to suit your work environment. Field-interchangeable modules allow operators to modify the test-tool capabilities in a matter of seconds and as many times as required in a day's work.

The design of the FTB-300 UTS also provides obvious cost advantages, since a single test system is shared between many applications. Without changing the platform, the test system can also be improved with new modules or software upgrades to provide the latest technologies at a fraction of the cost.

Test and Data Management

All test applications necessary to operate the FTB-300 UTS modules are integrated into a single software: ToolBox 5. In addition, FTM software manages test data in an effective and user-friendly manner.

Built-in Field Intelligence

The FTB-300 UTS relies on a powerful central processor to speed up data acquisition. Therefore, advanced test result analysis, documentation, and archiving are made possible on location with the test system itself.

The PC-based system runs Windows 95 and supports external peripherals such as a printer, VGA display, keyboard, and mouse. It can be used to run most off-the-shelf Windows and DOS software. Hence, the FTB-300 UTS can replace a portable PC.

The standard hard drive provides internal storage capacity for more than 100 000 fully documented OTDR test results. An internal floppy drive option is also available.

The FTB-300 UTS can be remotely controlled to save you valuable time. While installed in the field, the test system can be accessed from another FTB-300 UTS or from your desktop PC, making it easy to start an acquisition, adjust test parameters, and download test results.

Compatibility

The FTB-300 UTS is compatible with EXFO's existing handheld units. Some handheld power meters or loss test sets can even download data to the FTB-300 UTS via a serial link, or send messages along the fiber under test. The FTB-300 UTS is therefore an integral part of efficient fiber-optic testing.

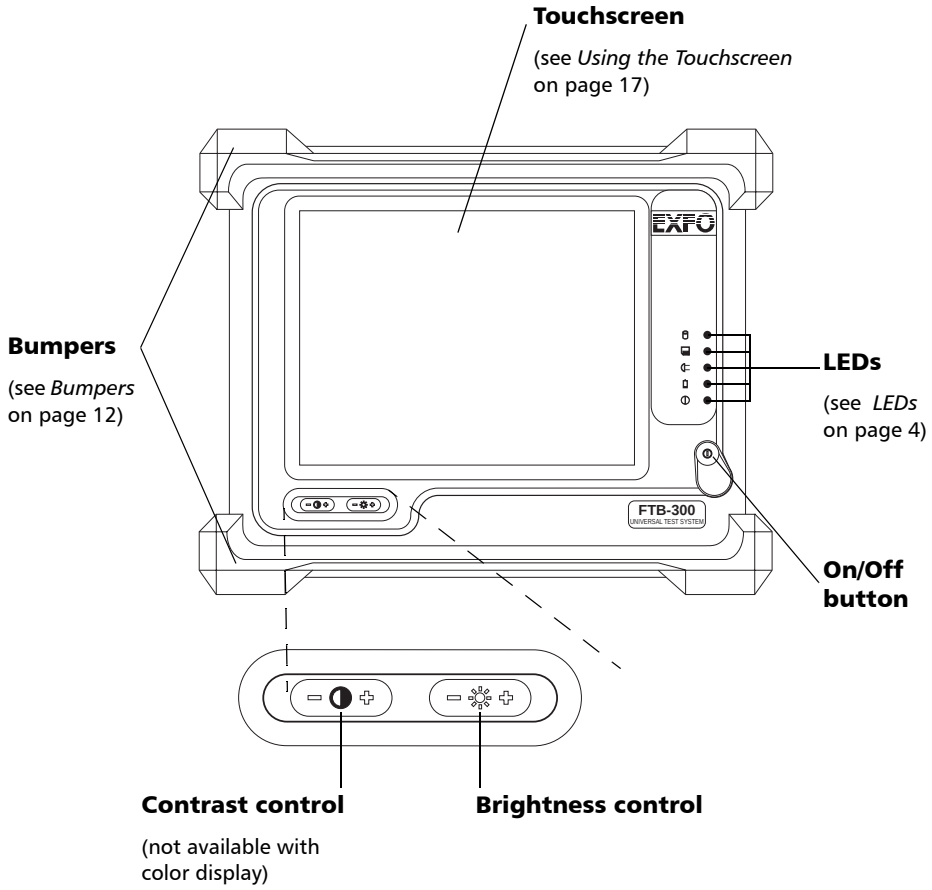
Rugged, Portable Field Unit

The FTB-300 UTS is designed to withstand the worst field conditions. The unit offers shock-proof casing with protective rubber bumpers to withstand drops and vibrations; a waterproof outer shell with sealed joints; and protective panels for connectors, ports and floppy drive.

2 Description of the FTB-300 UTS

The compact and rugged FTB-300 Universal Test System (UTS) can house up to three optical test modules simultaneously. The following pages will describe the FTB-300 UTS.

Front Panel



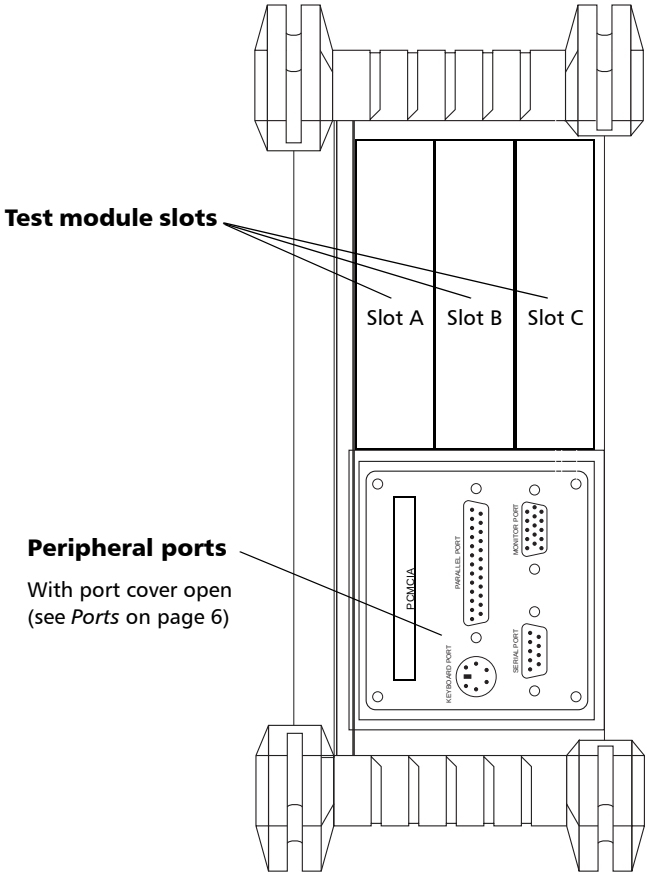
LEDs

The LEDs on the front panel provide you with the FTB-300 UTS status.

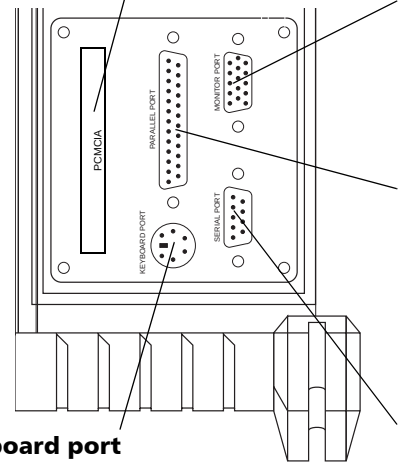
	**On:** hard disk drive is being accessed.
	**On:** floppy disk drive is being accessed (only in FTB-300 UTS equipped with a floppy disk drive).
	**On:** unit is plugged in and internal battery pack is charging. **Off:** batteries are fully charged (if FTB-300 UTS is plugged in) or FTB-300 UTS is ***not*** plugged in.
	**On:** ten minutes of battery operation left.
	**On:** FTB-300 UTS is turned ***on.*** **Flashing:** FTB-300 UTS is turned on ***but*** in Sleep mode.

Right Panel

The FTB-300 UTS peripheral devices and ports are located on the unit's left and right panels. The right panel ports are protected by a door to prevent foreign substance from reaching the internal components. This panel provides the input/output connectors and the optional PC Card reader. For information on installing and removing modules, see *Inserting and Removing FTB Test Modules* on page 15.



Ports



PC Card Reader (optional)

(see *Installing a PC Card* on page 47).

Monitor port

Female VGA connector (see *Installing an External Display* on page 39).

Parallel port

Female DB-25 connector (see *Installing an External Printer* on page 43).

Keyboard port

PS/2 connector (see *Installing an External Keyboard* on page 39).

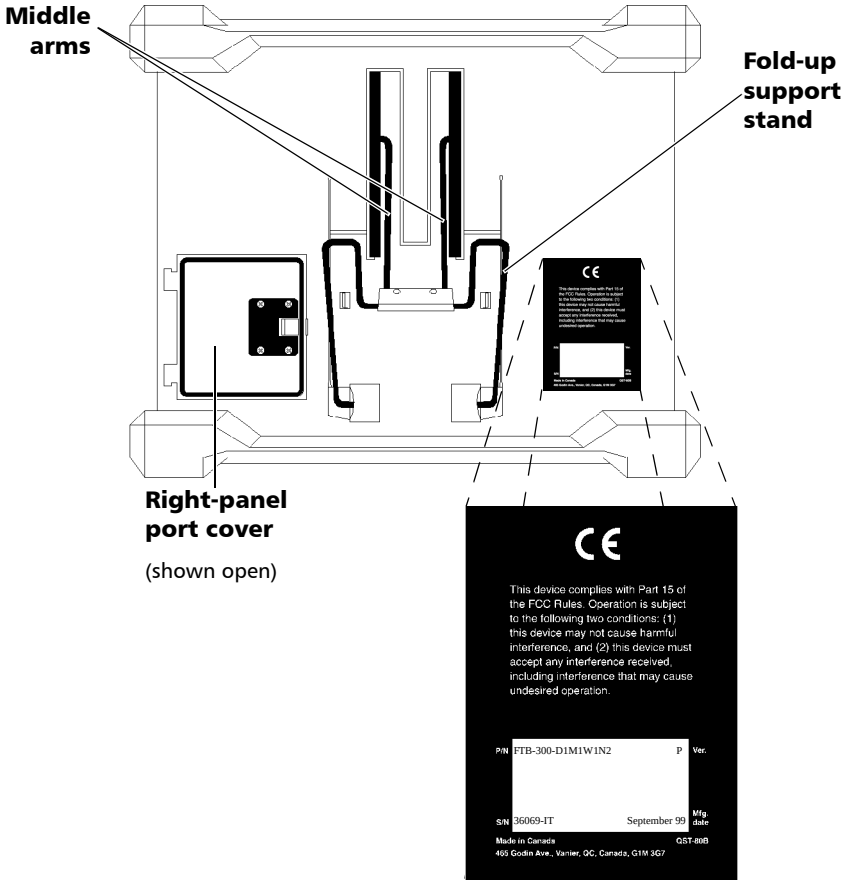
Serial port

Male DB-9 connector (see *Installing a Mouse* on page 40).

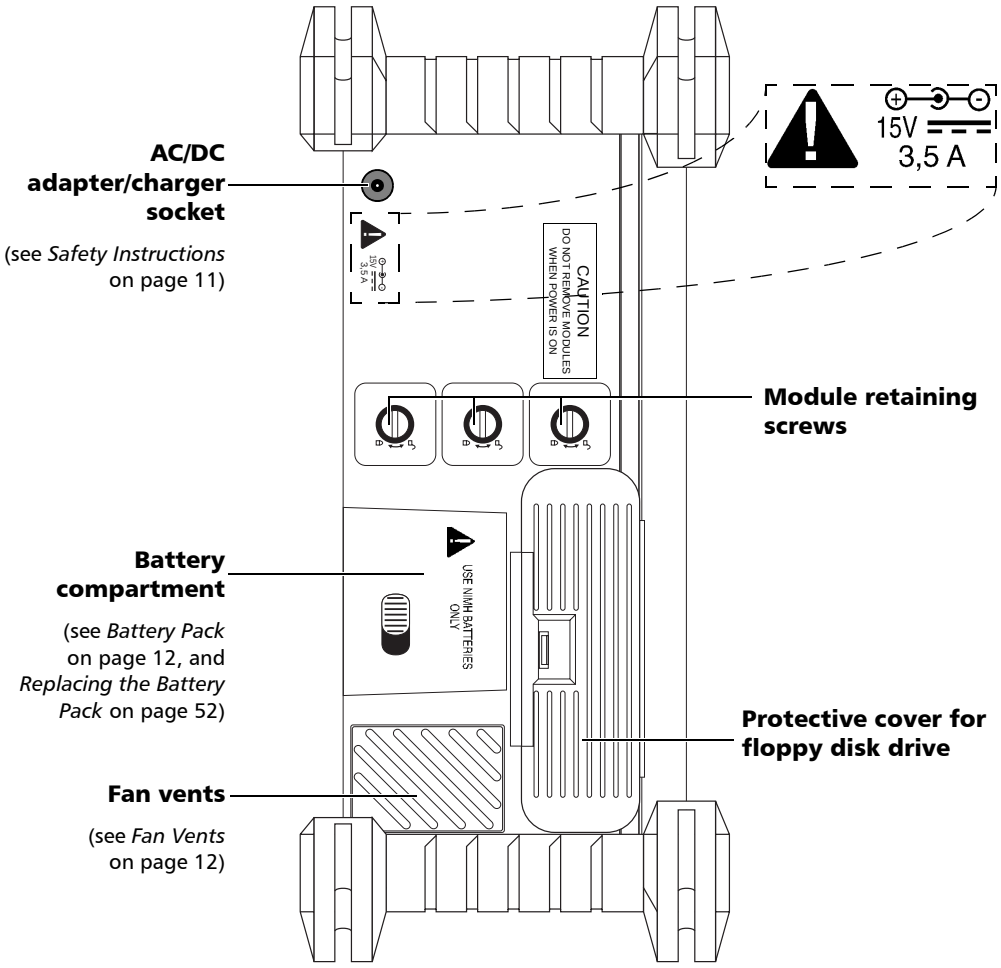
Back Panel

The FTB-300 UTS comes with a fold-up support stand, located on the back panel. Pull it out and down to support the FTB-300 UTS at the desired angle. When finished using the FTB-300 UTS, squeeze the two middle arms together and push upwards.

The cover for the peripheral ports is also held open on the back panel. Release the clip to close the cover.



Left Panel



AC/DC adapter/charger socket

(see *Safety Instructions* on page 11)

Module retaining screws

Battery compartment

(see *Battery Pack* on page 12, and *Replacing the Battery Pack* on page 52)

Protective cover for floppy disk drive

Fan vents

(see *Fan Vents* on page 12)

Protective Cover

Your FTB-300 UTS comes with a protective cover when shipped with the standard semi-rigid carrying case.

EXFO strongly recommends that you ***do not*** discard the protective cover and that you use it whenever you are shipping or transporting the FTB-300 UTS.

IMPORTANT

The FTB-300 UTS is shock-resistant, but the touchscreen may be damaged if it is exposed to sharp or heavy objects during transportation.

EXFO will not be responsible for any damage incurred to the touchscreen if the unit is shipped in the semi-rigid carrying case *without* its protective cover.

If you received your FTB-300 UTS with the standard semi-rigid carrying case, but without a protective cover, call EXFO (see *Contacting the Customer Service Group* on page 50).

Rigid Carrying Case

This added protection allows safe transportation of the FTB-300 UTS with all connectors, jumpers, and accessories.

This page is intentionally left blank.

3 General Safety Information

Safety Conventions

The following conventions should be clearly understood before operating the unit:

WARNING

Refers to a potential *personal* hazard. It requires a procedure which, if not correctly followed, may result in bodily harm or injury. Do not proceed beyond a **WARNING** unless the required conditions are understood and met.

CAUTION

Refers to a potential *product* hazard. It requires a procedure which, if not correctly followed, may result in irreparable component damage. Do not proceed beyond a **CAUTION** unless the required conditions are understood and met.

IMPORTANT

Refers to any information regarding the operation of the product which should not be overlooked.

Safety Instructions

AC/DC Adapter/Charger

CAUTION

The following voltage requirements must be met: 15 volts, 3.5 amperes, positive core. Use of higher voltages may damage the unit.

Power Supply

CAUTION

The power supply is designed for indoor use ONLY.

Battery Pack

CAUTION

Use NiMH replacement batteries ONLY. Use of other batteries may damage the unit.

Fan Vents

CAUTION

Leave the FTB-300 UTS fan vents clear of obstructions.

Modules

CAUTION

Do not remove or insert modules when the power is on.

Bumpers

CAUTION

Do not lift the unit by the upper bumper. This could damage the metallic crossbars built into the bumper.

Storage Temperature

CAUTION

If the unit is stored at a temperature outside of the specified operating temperature range, let the unit reach operating temperature before turning it on.

This page is intentionally left blank.

4 Working with the FTB-300 UTS

Turning the FTB-300 UTS On or Off

Turning On the FTB-300 UTS

When the FTB-300 UTS is turned off, hold down the blue power button on the front panel. The FTB-300 UTS starts in Windows 95, DOS, or the ToolBox 5 shell, depending on the selected start-up option.

To set a new start-up option, see *Changing the Start-Up Operating Environment* on page 31.

Turning Off the FTB-300 UTS

When the FTB-300 is turned on, hold down the blue power button on the front panel. All open applications will automatically close and the FTB-300 UTS will shut down.

Inserting and Removing FTB Test Modules

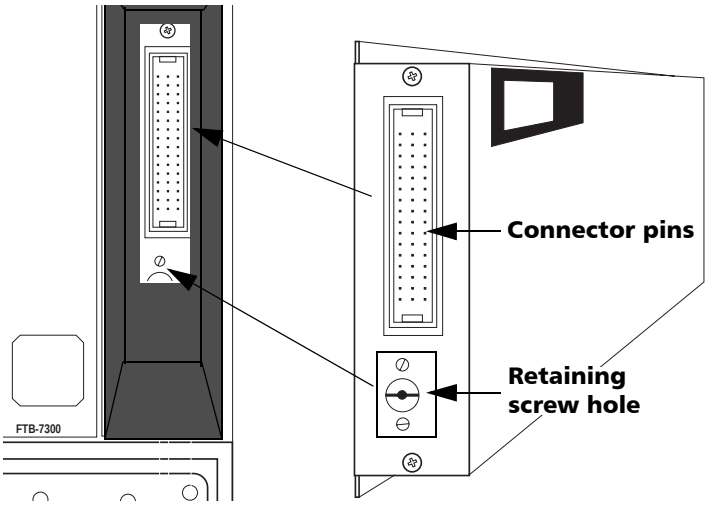
CAUTION

Do not remove or insert modules when the power is on.

Inserting a Test Module

To insert a test module,

1. Lay the module with the protruding edges on a flat surface. The module identification is on the left side of the module's front panel.
2. Raise the module so that the protruding edges can be inserted in the last available grooves at the back of the FTB-300 UTS. The connector pins should be at the top and the retaining screw hole at the bottom (see the following figure).



Note: *A protection device has been incorporated into the design of the module to protect against accidental damage to the fragile connector pins.*

3. Insert the top and bottom edges in the grooves of the module compartment.

4. Push the module all the way to the back of the compartment. The module will stop when it makes contact with the retaining screw.

5. Place the FTB-300 UTS so that the left panel is facing you.

6. While applying a slight pressure on the module, turn the corresponding retaining screw clockwise until it is tight. This will pull the module in to its “seated” position.

When you turn on the FTB-300 UTS, the start-up sequence will automatically detect the presence of the module.

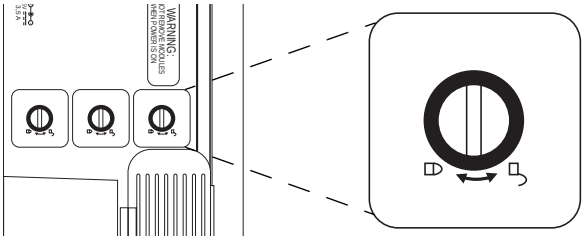
Removing a Test Module

CAUTION

Do not remove or insert modules when the power is on.

1. Position the FTB-300 UTS so that the left panel is facing you.
2. Turn the screw retaining the module you want to remove by approximately half a turn counterclockwise. The module will be slowly released from its compartment.

Note: *You can turn the screw with a slot screw driver or any other flat device solid enough to turn a screw (such as a small coin).*



3. Once the screw is no longer holding the module, place the FTB-300 UTS so that the right panel is facing you.
4. Hold the module firmly and pull it out.

Using the Touchscreen

Introducing the Touchscreen

The touchscreen simplifies and accelerates testing procedures by providing immediate access to commands. The screen detects the position of your finger, activating a ToolBox 5 command, function, or button. The FTB-300 UTS is available with a color or monochrome liquid-crystal display (LCD).

Color LCD
The color LCD displays up to 16 colors in high resolution mode (640 x 480).

Monochrome LCD
The monochrome LCD displays up to 16 shades of gray in high resolution mode (640 x 480).

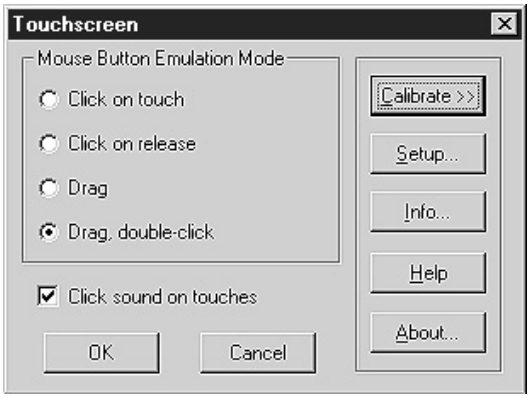
Setting Brightness and Contrast

The buttons and respectively adjust the display's contrast and brightness. To locate these buttons, see *Front Panel* on page 3.

Calibrating the Touchscreen

To calibrate your touchscreen,

1. Start the FTB-300 UTS in the Windows 95 environment. For more information on selecting a start-up operating environment, see *Changing the Start-Up Operating Environment* on page 31.
2. From the *Start* menu, click *Settings>Control Panel.* The *Control Panel* window appears.
3. In this window, double-click on *Elo Touchscreen.* The *Touchscreen* window appears. Make sure it is configured as illustrated.



4. In the *Touchscreen* window, click *Calibrate>>*.
5. Using your finger, a pencil, or another pointed (but not **sharp**) object, touch the three targets when they appear on screen.

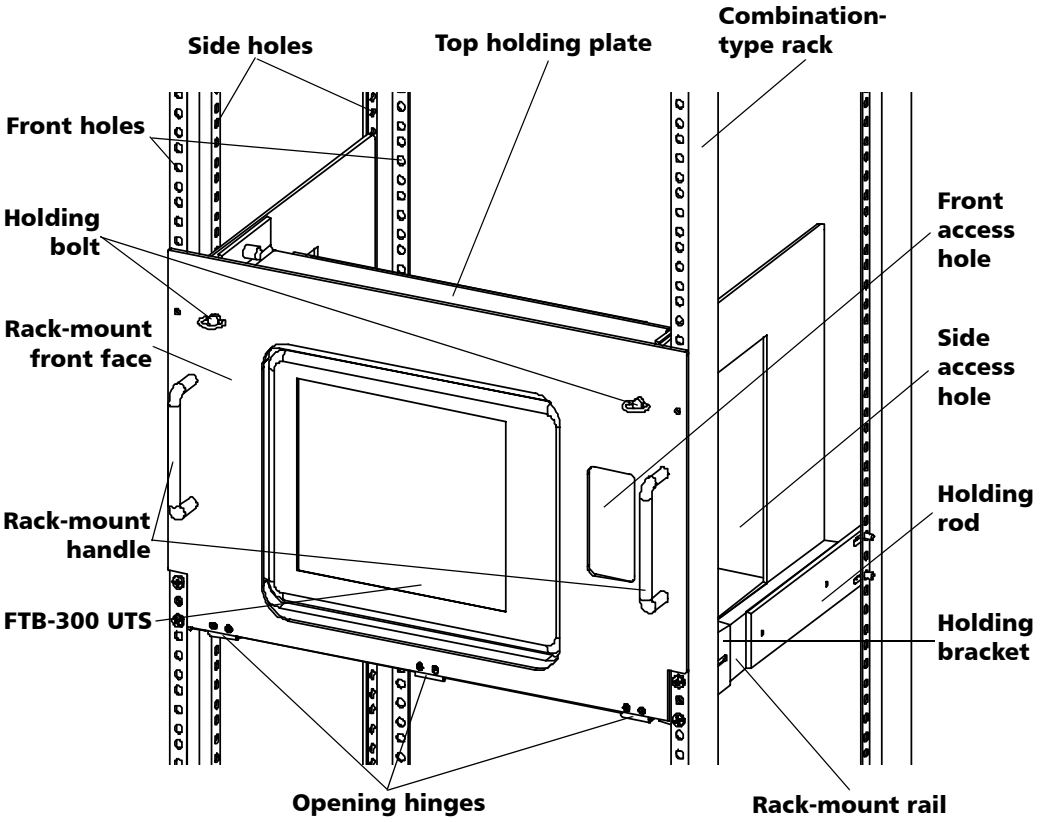
Tip: *You may choose to touch a point slightly lower than the target's center to see your cursor when working with applications.*

6. After you have touched the three targets, a *Check Calibration* dialog box will appear, asking you if the cursor responds as expected. If you click *Yes,* the screen is calibrated and you are sent back to the *Touchscreen* window. Otherwise, you are asked to redo the calibration procedure until you are satisfied.
7. To return to Windows 95 from the *Touchscreen* window, click *OK*.

Note: *To disable the audio feedback given on contact with the touchscreen, uncheck the option* Click sound on touches *found in the* Elo Touchscreen *control panel.*

Mounting the FTB-300 UTS in a Rack

An optional rack mount is available for permanent or semi-permanent installation of an FTB-300 UTS. You can install the rack mount on any standard combination-type rack.



Rack-Mount Dimensions

The rack mount fits in combination-type racks (with holes on the front and sides). It is 19 or 24 in. wide and 12.25 in. high (7 u). It can fit in racks that are 12, 16, or 22 in. deep.

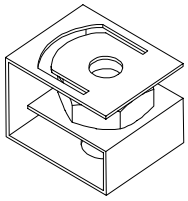
Installing the Rack Mount

IMPORTANT

It is recommended that two people install the rack mount. One should hold the mount while the other inserts the different screws. A Phillips-head screwdriver is required for the installation. The following instructions are for installation in 16- and 22-in. racks.

1. Insert eight clip nuts (illustrated below)—four on the front holes found on both sides of the front face, and four on the side holes found on both sides at the back. These nuts will make it easier to install the holding brackets on the front face and the holding rods at the back.

Note: *On 12-in. racks, holding brackets are found at both ends because there is no need for holding rods.*

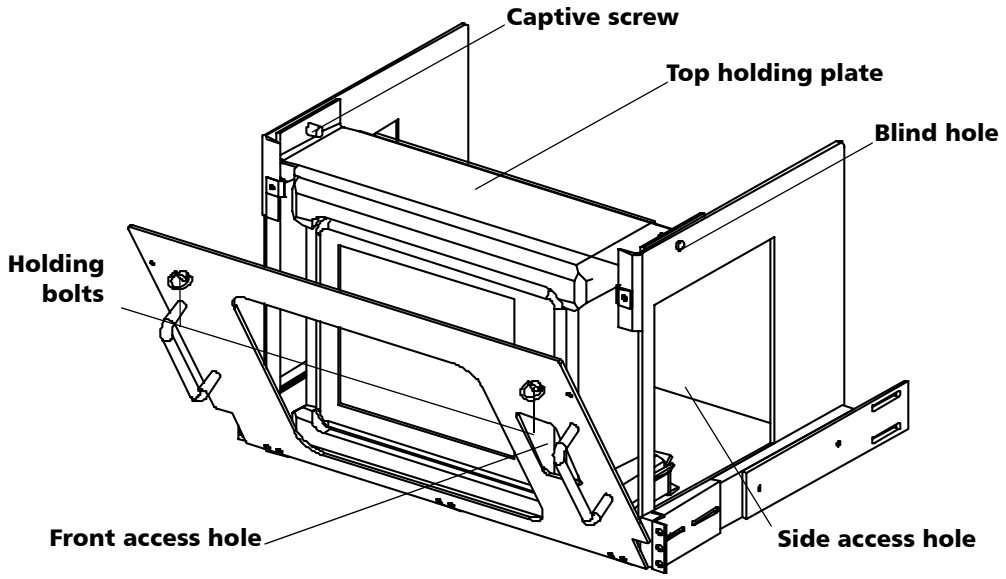


2. Position the rack-mount holding brackets and rods in front of the clip nuts.
3. Insert the Phillips-head screws.

Tip: *It is easier to put the rack mount in place by unlocking the rails from the holding brackets and rods and screwing them in position on the rack mount itself. Then insert the rack mount by "clipping" it onto the holding rods previously installed on the combination-type rack.*

Installing an FTB-300 UTS in a Rack Mount

1. Slide out the rack mount along the rails by pulling on the handles.
2. Unlock the holding bolts found along the inner left and right edges of the front face.



3. Open the front face.
4. Place the FTB-300 UTS in position, in front of the metal guide.

Note: *If modules are installed in the FTB-300 UTS and cables or jumpers are plugged into their ports, make sure the cables or jumpers are unplugged before the FTB-300 UTS is placed in position.*

5. Once the FTB-300 UTS is in position, insert the top holding plate in the "rails" found on the FTB-300 UTS' top bumper.

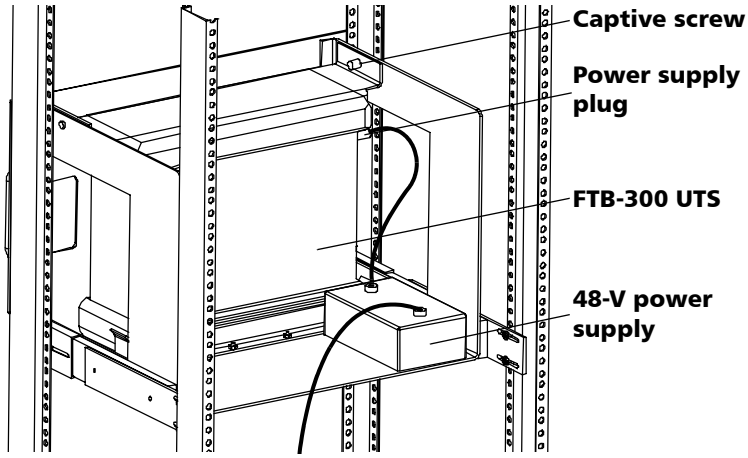
At this point, the captive screws found on both sides of the holding plate should align with the blind holes found on the sides of the mount.

6. Gently push and turn the captive screws into the blind holes.

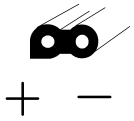
Note: ***Do not*** *turn the captive screws too tightly.*

Plugging in the FTB-300 UTS

While the rack mount is out, plug the optional 48-V power supply[1] (found on the left side of the mount) or standard 120-V power supply into the FTB-300 UTS' AC/DC adapter/charger socket.



Note: *If the power cable ends used to plug in the 48-V power supply are bare (not fitted with a plug), you can identify their polarity by looking at their shape, as shown in the following image.*



1. 48 Vdc to 15 Vdc converter

Operating a Rack-Mounted FTB-300 UTS

Once the FTB-300 UTS is installed in the rack mount, you can plug cables and jumpers into its modules. You can access the modules' ports through the side access hole. To do so,

1. Slide out the rack mount along the rails by pulling on the handles.
2. Install the modules and plug in the cables through the side access hole.
3. Push the rack mount back in.
4. Perform the tests.

Note: *The front access hole is for external cables or temporary connections.*

Removing the FTB-300 UTS from a Rack Mount

1. Slide out the rack mount along the rails by pulling on the handles.
2. Unlock the holding bolts found along the inner left and right edges of the front face.
3. Open the front face.
4. Unplug the 48-V power supply from the AC/DC adapter/charger socket and the cables from the connectors.

Note: *If modules are installed in the FTB-300 UTS and cables or jumpers are plugged into their ports, make sure the cables or jumpers are unplugged before the FTB-300 UTS is removed.*

5. Remove the top holding plate by unscrewing the captive screws and pulling up the plate.
6. Remove the FTB-300 UTS.

Note: *The FTB-300 UTS works outside the rack mount on internal battery supply.*

5 Running Software on an FTB-300 UTS

Your FTB-300 UTS can run both DOS and Windows 95 operating systems. Versions of the ToolBox shell prior to 5 are optimized to run on DOS whereas ToolBox 5 and subsequent versions are optimized to run on Windows 95. For more information on working with DOS, see *Running DOS on your FTB-300 UTS* on page 61.

Note: *This chapter assumes that you are familiar with basic Windows 95 and Windows Explorer operations.*

Backing Up the Windows Disk Set

Before performing **any** tests with your FTB-300 UTS, we ***strongly advise*** you to perform a complete backup of your entire system. This operation will allow you to quickly resume testing should anything happen to your system.

To do so,

1. Start the *mscsd.exe* application from the directory C:\Windows\Options and follow the simple onscreen instructions.
2. When the application asks you what type of disk you want to create, select the *Complete Windows disk set (29 disks)* option. You will have to insert each disk in turn until the backup is complete.

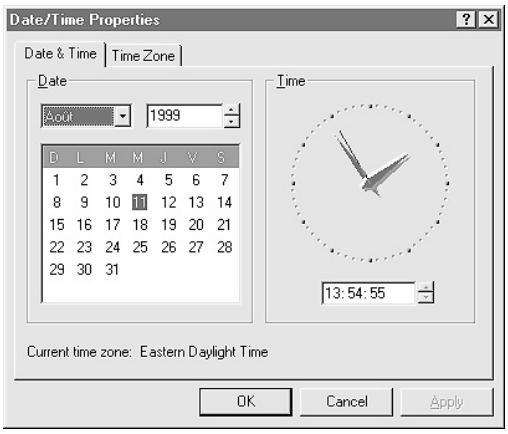
Using Windows 95

To ensure proper operation of the FTB-300 UTS under Windows 95, perform the following verifications and configurations.

Setting Date and Time

Before testing, you should set the date, time, and time zone on your FTB-300 UTS.

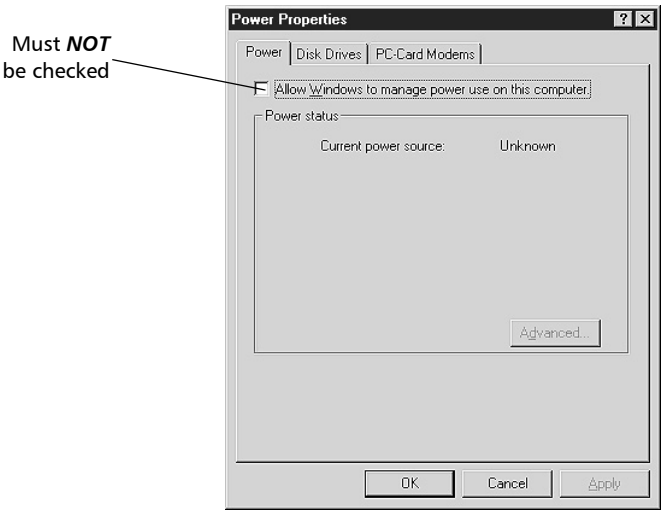
1. From the *Start* menu, click *Settings>Control Panel.* The Control Panel appears.
2. Double-click on the *Date/Time* control panel. The following window appears.



From this window, you can set the date, time, and time zone.

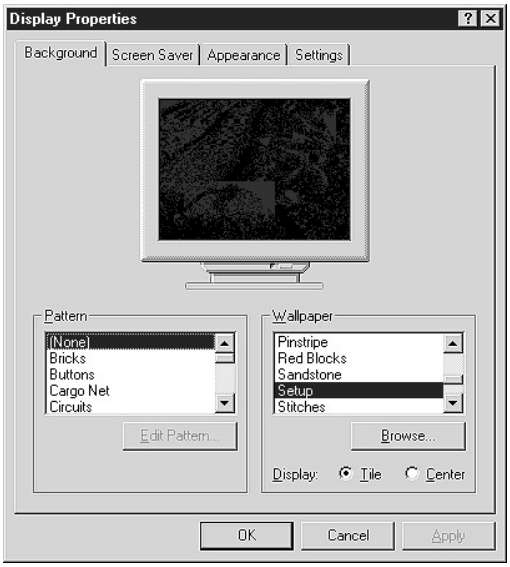
Configuring Power Management

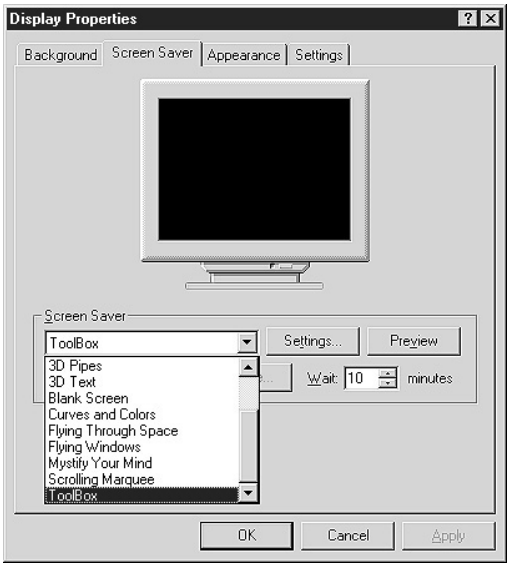
From the *Start* menu, click *Control Panel>Power*. The *Power* window appears. Make sure it is configured as illustrated in the following figure.

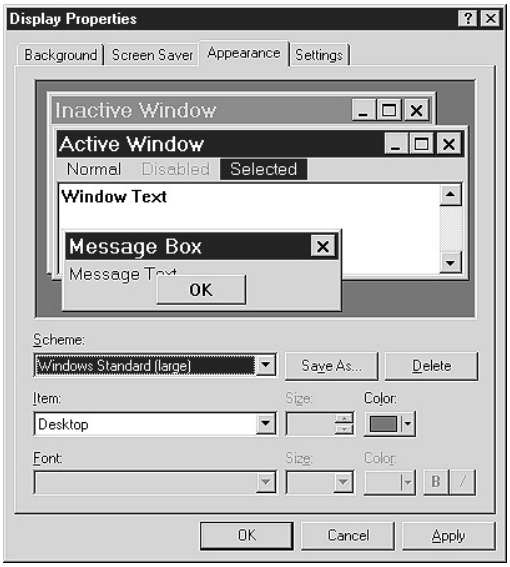


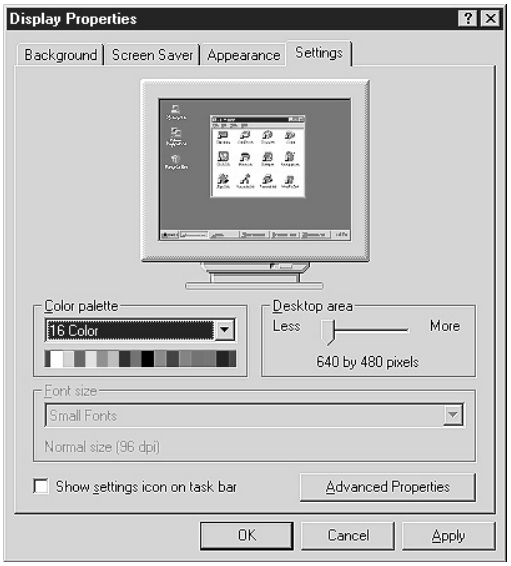
Configuring Display Options

1. From the *Start* menu, click *Settings>Control Panel*. The *Control Panel* window appears.
2. Double-click on the *Display* icon. The *Display Properties* window appears. Make sure the different pages are configured as illustrated in the following figures.


Display Properties
Background
Screen Saver
Appearance
Settings
Pattern
(None)
Bricks
Buttons
Cargo Net
Circuits
Edit Pattern...
Wallpaper
Pinstripe
Red Blocks
Sandstone
Setup
Stitches
Browse...
Display:
Tile
Center
OK
Cancel
Apply

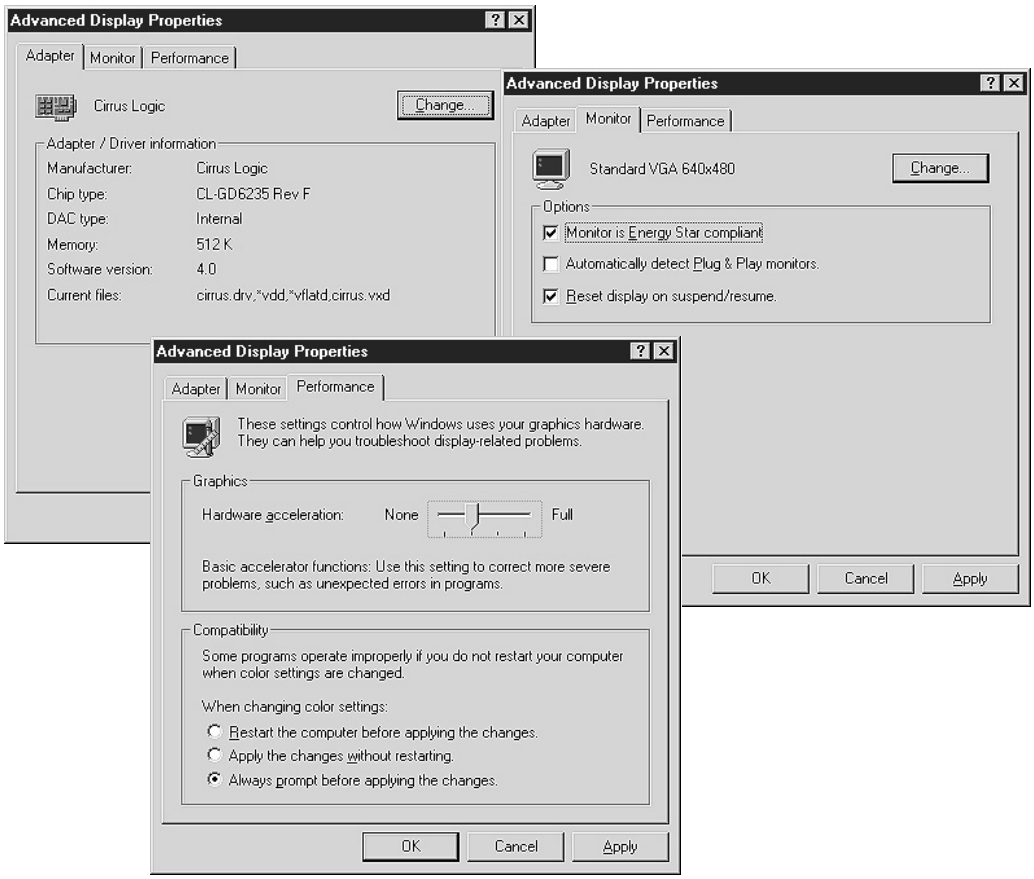

Display Properties
Background
Screen Saver
Appearance
Settings
Screen Saver
ToolBox
Settings...
Preview
Wait:
10
minutes
3D Pipes
3D Text
Blank Screen
Curves and Colors
Flying Through Space
Flying Windows
Mystify Your Mind
Scrolling Marquee
ToolBox
OK
Cancel
Apply


Display Properties
Background
Screen Saver
Appearance
Settings
Inactive Window
Active Window
Normal
Disabled
Selected
Window Text
Message Box
Message Text
OK
Scheme:
Windows Standard (large)
Save As...
Delete
Item:
Size:
Color:
Desktop
Font:
Size:
Color:
B
I
OK
Cancel
Apply


Display Properties
Background
Screen Saver
Appearance
Settings
Color palette
16 Color
Desktop area
Less
More
640 by 480 pixels
Font size
Small Fonts
Normal size (96 dpi)
Show settings icon on task bar
Advanced Properties
OK
Cancel
Apply

Advanced Display Options

Finally, while still in the *Settings* page, click *Advanced Properties.* The *Advanced Display Properties* window appears. Make sure the settings are as follows:



3. Click *OK* to leave the *Advanced Display Properties* window and *Close* to close the *Display Properties* control panel.

4. Click *Yes* when the *System Settings Change* window asks you if you want to restart you computer now. The FTB-300 UTS restarts.

Running Standard Windows 95 Applications

To run standard Windows 95 applications, the FTB-300 UTS must be started up in the Windows 95 operating environment to ensure full compatibility with all possible configurations. Once the FTB-300 UTS is started in the correct operating environment, you can install and run programs as you would on any standard PC.

For information on the various FTB-300 UTS start-up options, see *Changing the Start-Up Operating Environment* on page 31.

Backing Up Test Data

As with all data stored on a hard disk drive, it is advisable to do a backup on a regular basis. To do so,

1. Locate the directory where your traces have been saved using *Windows Explorer*.
2. If your FTB-300 UTS is equipped with a floppy disk drive, copy this data to drive A. Otherwise, transfer the data with the Direct Cable Connection utility (see *Transferring Data* on page 33).

Creating a Start-Up Disk

To create a start-up disk,

1. From the *Start* menu, click *Settings>Control Panel*. The *Control Panel* window appears.
2. In the *Control Panel* window, double-click *Add/Remove Programs*. The *Add/Remove Program Properties* window appears.
3. From this window, select the *Startup disk* tab. Click *Create Disk* and follow the onscreen instructions.

Using the Screen Saver

The use of a screen saver minimizes battery consumption, while reducing wear on your screen. We recommend that you use the screen saver provided with Windows 95 in the *Display* control panel. For more information on Windows 95 functions, refer to the Windows 95 on-line help.

Note: *The screen saver feature in ToolBox 4.x interferes with operations in Windows 95. Make sure this feature is deactivated.*

IMPORTANT

When reactivating the screen, touch the lower right-hand corner. Touching elsewhere could inadvertently cause loss of current test data.

Changing the Start-Up Operating Environment

You can easily change the FTB-300 UTS operating environment with shortcuts. Shortcuts are small software applications used to set the starting operating environment.

To start up in Windows 95, DOS, or the ToolBox 5 shell,

1. From the ToolBox 5 shell, return to Windows 95 by clicking on the *Quit Shell* button. The Windows 95 desktop appears, displaying the following three shortcut titles:

- *Boot into DOS*
- *Boot in Windows 95 Explorer*
- *Boot directly in ToolBox 5.0*

2. Double-click on the *Boot into DOS* icon to always start in DOS, on the *Boot in Windows 95 Explorer* icon to always start in Windows 95, or on the *Boot directly in ToolBox 5.0* icon to always start in the ToolBox 5 shell. A window will appear asking you if you want to restart straight away.
3. Click *Yes.* The FTB-300 UTS restarts.

From now on, the FTB-300 UTS will always start in DOS, Windows 95, or the ToolBox 5 shell, depending on your selection.

If Windows 95 starts in "Safe Mode"

Your FTB-300 UTS may start in the Windows 95 "safe mode" if the previous start-up was interrupted. Once Windows 95 has finished its start-up routine in "safe mode", shut down Windows 95 with the restart option; the FTB-300 UTS then restarts in the set operating environment.

IMPORTANT NOTICE TO TOOLBOX 4.X USERS

ToolBox 4.x is not designed to test fiber while in the Windows (3.x, 95, 98) operating system. Unexpected errors could occur that may lead to loss of data. ToolBox 4.x may be used in Windows if you remove the test modules before starting the FTB-300 UTS and if you work offline.

Selecting a Start-Up Screen

Note: *The* Paintbrush *software is used in this procedure, but you can achieve the same results with any other paint software, as long as the dimensions of the image are the same.*

You can change the default image that appears at the start-up to any image you want (company logo, user name, etc.) using the following procedure:

1. Locate the file named *logo.sys* in your root directory (C:\) and rename it *prevlogo.sys.*
2. In the *Paintbrush* application, open the file you want to use as your new start-up screen.

3. From the *Image* menu, choose *Attributes.* In the *Width* edit box, type 400, and 320 in the *Height* edit box.

Note: *The image will be cropped,* ***not*** *scaled.*

4. In the *Units* area, select the *Pels* (for pixels) radio button.
5. Depending on your image, select *Colors* or *Black and white* in the *Colors* area.
6. Save your image as *logo.sys* in the root directory (C:\). (If you use a paint program other than *Paintbrush*, make sure the image is saved in bitmap [.bmp] format. Otherwise the procedure will not work.) The next time you start up your FTB-300 UTS, the new image will appear onscreen.

Note: *You can also change the screen that appears when you shut down Windows 95. To do so, follow the previous procedure, but use the* logow.sys *instead of* logo.sys *file.*

Transferring Data

Data can be transferred through the FTB-300 UTS serial port or parallel port. To transfer data back and forth between your FTB-300 UTS and another computer (PC or FTB-300 UTS), use the Direct Cable Connection utility provided with Windows 95.

All the necessary network drivers were installed and configured at the factory. However, a number of parameters must be set before proceeding with the transfer.

- To use the Direct Cable Connection utility, you must first exit the Toolbox 5 shell (the utility is not integrated into Toolbox 5).
- For the Direct Cable Connection utility to work, the hard disk (C:\) of your FTB-300 UTS must be in Shared mode.
- You can then start the Direct Cable Connection utility.

Sharing Files with an FTB-300 UTS

To activate the file-sharing feature on an FTB-300 UTS,

1. Exit the ToolBox 5 shell. You will return to the Windows desktop.
2. Start the Windows 95 Explorer.
3. In Windows 95 Explorer, select the directory or disk that you want to share.
4. From the *File* menu, select *Properties*. The *Properties* window appears.
5. Click the *Sharing* tab. The *Sharing* page comes to the front.
6. Select the *Shared As* radio button and the type of access that you want for your selected directory or drive.
7. Click *OK*. The directory or drive you selected is now shared.

Transferring Files Between Two FTB-300 UTS

You must configure one FTB as a Host and the other as a Guest.

1. From the *Start* menu, click *Programs>Accessories>Direct Cable Connection*.
2. Check if the information is correct (Host or Guest, and the communication port).
3. If the information is correct, click *Finish*.

Otherwise

4. Click *Change*.
5. Select Host or Guest, according to the appropriate FTB.
6. Select the communication port.
7. Click Finish.

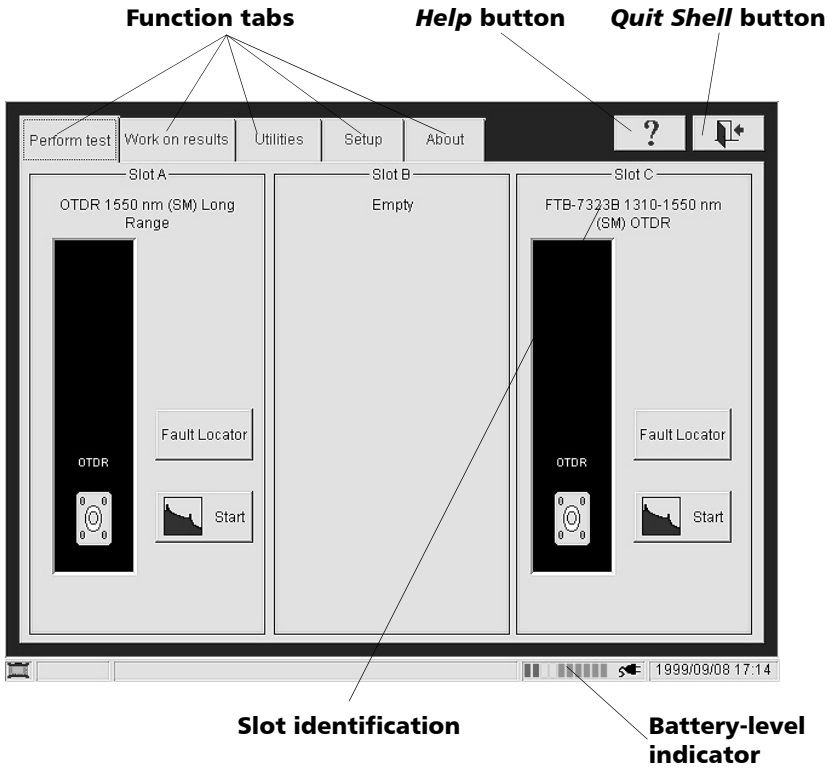
Note: *The supplied null modem cable, which plugs into the mouse port, should be used for the transfer. To locate the mouse port, see* Ports *on page 6.*

Introducing ToolBox 5

ToolBox 5 uses the FTB-300 UTS PC-based architecture to provide extensive documentation capabilities for all types of test results, as well as a complete range of utilities. ToolBox 5 is a shell that comes pre-installed in the FTB-300 UTS but also runs on any Windows 95-supported computer. Off-line compatibility with Windows NT allows users to work on existing test results in office computer environments.

An intuitive graphical user interface, illustrated with icons, buttons, and pictograms, provides quick and direct access to all functions with the FTB-300 UTS touchscreen. The ToolBox 5 shell can be easily upgraded to suit future technological developments in fiber-optic test equipment.

The ToolBox 5 shell is an integrated and user-friendly interface that allows you to easily manage test applications and modules. The main screen contains function tabs which you use to set various parameters and select the test application you wish to use.



Installing ToolBox 5 Applications

If you have to install or reinstall the ToolBox 5 shell or its test applications, follow the standard Windows 95 installation procedure.

To install from a floppy disk

1. Insert the floppy disk marked *Disk 1* in the FTB-300 UTS floppy disk drive.
2. From the *Start* menu, click *Run…* The *Run* window appears.
3. In the *Run* window, type *a:setup* and press <enter>.

Once this is done, follow the straightforward onscreen procedure. If your FTB-300 UTS is not equipped with a floppy disk drive, transfer the data from a computer with the Direct Cable Connection utility. For more information on this procedure, see *Transferring Data* on page 33.

To Install Following a Data Transfer

Once the data is transferred to the FTB-300 UTS, proceed as in the floppy disk installation, but instead of typing *a:setup,* type the path where the setup file has been transferred and press <enter>. For more information, see *Transferring Data* on page 33.

This page is intentionally left blank.

6 Using Peripherals with an FTB-300 UTS

Installing an External Keyboard

When you are required to enter alphanumeric data, a touchscreen keyboard will be displayed.

However, an external keyboard may also be used. To install an external keyboard on your FTB-300 UTS, simply connect the keyboard into the keyboard port. To locate the keyboard port, see *Ports* on page 6.

Note: *It is not necessary to turn off the FTB-300 UTS before connecting the keyboard. The software will automatically detect the presence of a keyboard.*

The keyboard port can also be used to connect any other PS/2-compatible device to the FTB-300 UTS.

If a keyboard is connected, the touchscreen keyboard will still be displayed until you go into the *Touchscreen Keyboard* section of the *Setup* page and select *None* using the left and right arrow buttons.

Installing an External Display

The FTB-300 UTS supports the use of an external display by providing a VGA color output signal through its VGA port (this signal can be used with electronic overhead projectors or other VGA-compliant devices). To locate the VGA port on the FTB-300 UTS, see *Ports* on page 6.

To setup an external display,

1. Turn on the VGA display.
2. Connect the display to the VGA port.
3. Select the *Setup* tab from the ToolBox 5 main screen.
4. In the *External Monitor (CRT)* section, toggle the button so it reads *ON*.

Installing a Mouse

To move the cursor on the screen, you can use the touchscreen, a mouse, or any other pointing device.

To use a mouse with your FTB-300 UTS, simply connect the mouse to the serial input/output (DB-9) port. To locate the serial port, see *Ports* on page 6.

This port can also be used to connect the FTB-300 UTS to a desktop computer with a null-modem cable in order to transfer test files from the FTB-300 UTS to the desktop computer.

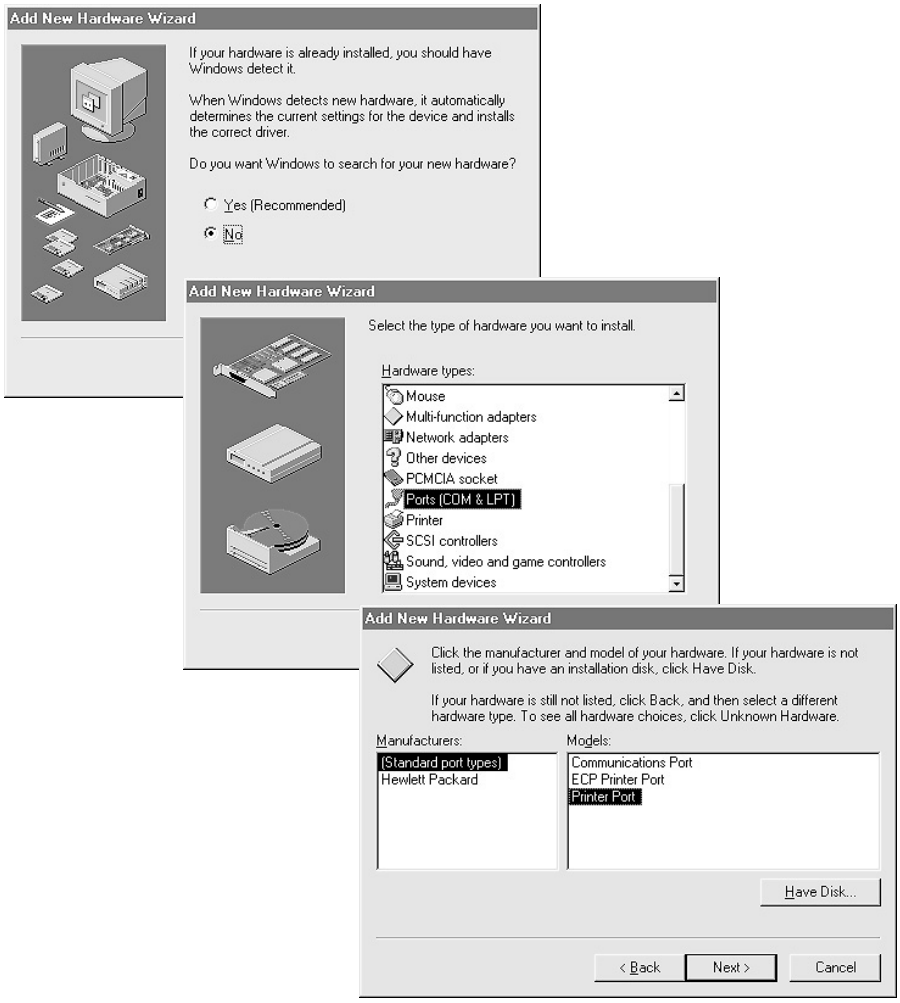
Note: *It is not necessary to turn off the FTB-300 UTS before connecting the mouse. The software will automatically detect the presence of a mouse.*

Adding a Printer Port

Before installing the printer driver for the GP-273 printer module, you have to add a second printer port to the Windows configuration of your FTB-300 UTS. This operation is performed from the Windows desktop.

To add the printer port,

1. From the *Start* menu, select *Settings>Control Panel.* The *Control Panel* window appears.
2. Double-click *Add New Hardware.* The *Add New Hardware Wizard* appears. From the Wizard, select the options as illustrated in the following figures.



To continue with other Wizard steps, click *Next.* When you click *Finish* at the end of the procedure, the new printer port is added to your configuration.

Once the new port has been added to your configuration, you must change one more setting—the input/output range resource.

To change the input/output range resource,

1. From the *Start* menu, select *Settings>Control Panel.* The *Control Panel* window appears.
2. Double-click *System.* The *System Properties* window appears.
3. Select the *Device Manager* tab. The *Device Manager* page appears.
4. From the device list, select the *LPT2* printer port and click *Properties.* The *LPT2 Properties* window appears.
5. From this window, select the *Resource* tab. The *Resource* page appears.
6. Double-click on the *Input/Output Range* resource and change *0378* to *0278.*
7. Click *OK* and return to the desktop. The port is now properly configured and you can add a printer driver to that port.

Installing Printer Drivers

You need to install printer drivers when you want to use an external printer or a printer module.

To install a driver,

1. Turn on the FTB-300 UTS.
2. Insert the floppy disk containing the driver in the floppy disk drive.
3. In the Windows environment, select *Start>Settings>Printer.* The *Printer* window appears.
4. Double-click *Add Printer.* The *Add Printer Wizard* starts up.
5. Simply follow the installation instructions. When you are asked to click the printer model and manufacturer, click *Have Disk...* and select the printer driver on the floppy disk you inserted. When asked to select a printer port, select the *LPT2* port you added.

For more information about adding a port to your Windows configuration, see *Adding a Printer Port* on page 40.

The driver is properly installed and ToolBox 5 now recognizes your printer.

Installing an External Printer

To install a parallel printer on your FTB-300 UTS,

1. Connect the printer (or other parallel input/output device) to the parallel port (DB-25). To locate that port, see *Ports* on page 6.
2. Turn on the FTB-300 UTS.
3. Install the printer driver. For more information about installing drivers, see *Installing Printer Drivers* on page 42.

The printer driver is properly installed and ToolBox 5 now recognizes your printer. For more information on printing from a test application, refer to the test application instruction manual.

Installing the Printer Module (Optional)

1. Turn on the FTB-300 UTS.
2. Install the printer driver. For more information about installing drivers, see *Installing Printer Drivers* on page 42.
3. Shut down your FTB-300 UTS.
4. Insert the printer module in the FTB-300 UTS.

CAUTION

Do not remove or insert modules when the power is on.

5. Turn on your FTB-300 UTS. The new printer driver and printer module are automatically recognized by ToolBox 5.

Note: *If, for some reason, the printer module is not recognized, il will not appear in the* Perform test *tab of ToolBox 5.*

The printer module will be present in the list of available printers. For more information about printing from a test application, refer to the instruction manual that comes with your modules. For more information on the printer module, refer to the *FTB-300 UTS Service Manual.*

Changing the Paper in the Printer Module

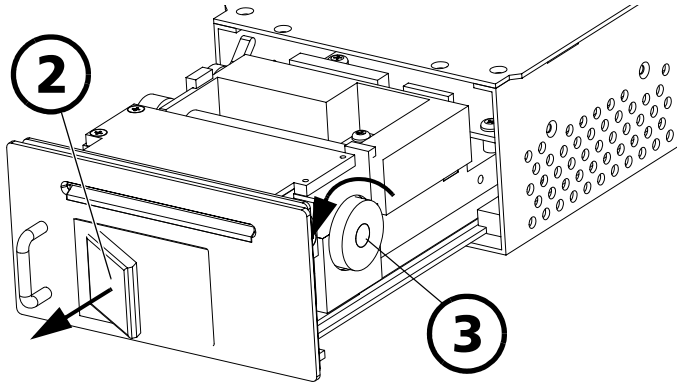
To change the paper in the printer module, you do not have to shut down your FTB-300 UTS.

To change the paper,

1. Lay your FTB-300 UTS on its touchscreen with the top of the FTB-300 UTS away from you.

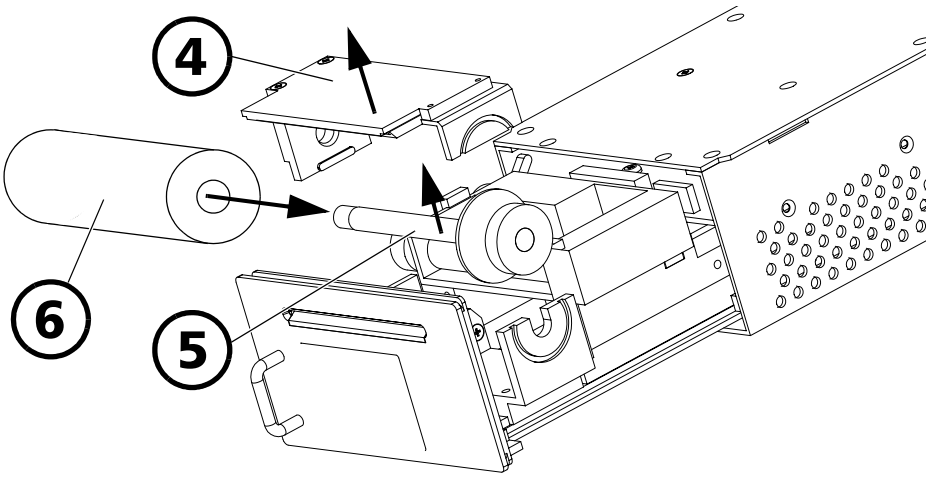
CAUTION

Make sure the touchscreen is not lying on any sharp object.



2. Lift the metallic latch on the module and pull gently. The printer module opens. Keep pulling until the printer cradle stops.

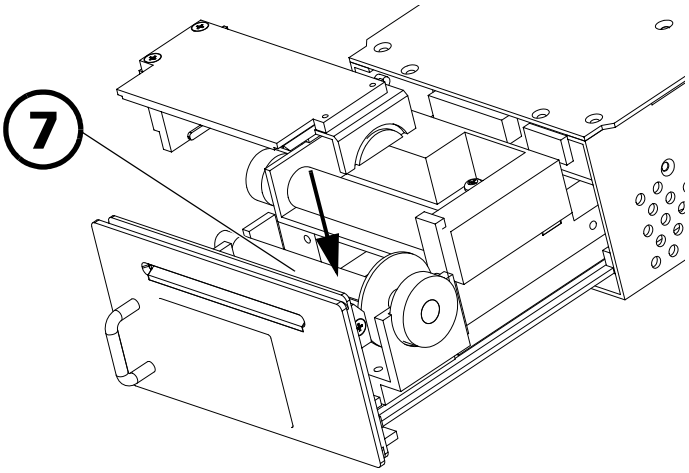
3. Turn the round knob facing you counterclockwise until it comes free.



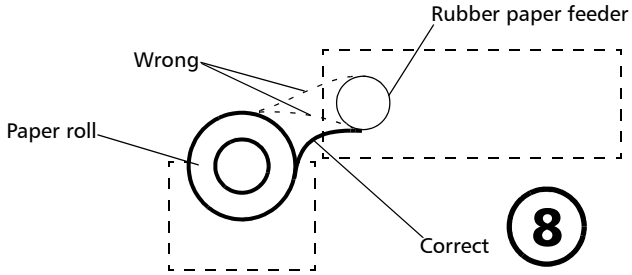
4. Gently remove the top part of the paper assembly. You should now see the paper holder, since there is no paper left.

5. Pull the paper holder out of the paper assembly.

6. Insert a new paper roll on the paper holder.

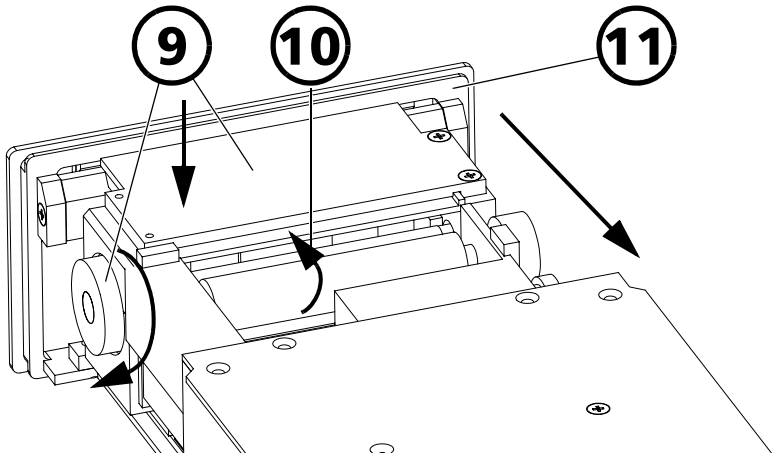


7. Put the paper holder back as it was before you added the paper roll.



8. Slide the paper coming *from the bottom of the roll* **under** the rubber paper feeder.

Note: *If the paper is coming from the top of the roll, this means that the paper was inserted the wrong way. Flip the paper roll so that the paper comes from underneath.*



9. Put the top part of the paper assembly in its original position and tighten the round knob back into place.

10. Slide the paper in the paper guide found on top of the paper assembly and make sure it comes out correctly from the slit on the front panel of the printer module.

11. Push the printer cradle back into the module until you hear a clicking sound. This means the printer cradle is properly locked in position.

You are now ready to print again.

Installing a PC Card

1. Turn on the FTB-300 UTS.

2. Install the PC Card driver. For more information about installing drivers, see *Installing Printer Drivers* on page 42.

3. Insert the PC Card in the PC Card reader. To locate the PC Card reader, see *Ports* on page 6.

The PC Card (formerly known as PCMCIA) is automatically recognized. The PC Card reader found in the FTB-300 UTS supports SRAM and flash cards for storage of test files, and fax/modem cards.

This page is intentionally left blank.

7 Troubleshooting

Solving Problems

Problem	Cause	Solution
No Power Up	The battery pack is discharged.	➤ Charge the battery pack. ➤ Replace the battery pack with a fully charged one. ➤ Connect the FTB-300 UTS to an external power supply (AC/DC adapter/charger).
	The FTB-300 UTS is not connected to an external power supply.	➤ Connect the FTB-300 UTS to an external power supply using the AC/DC adapter/charger.
	The external power supply is unplugged.	➤ Make sure the external power supply is plugged in at both ends.
Unit Turned Off	The FTB-300 UTS was automatically turned off because batteries were too low.	➤ Charge the battery pack. ➤ Connect the FTB-300 UTS to an external power supply (AC/DC adapter/charger). ➤ Replace the battery pack with a fully charged one.
Dim Screen Characters	The *Contrast* and/or *Brightness* control(s) are not set properly.	➤ Adjust the *Contrast* and *Brightness* controls.
	The screen needs to warm up.	➤ Allow time for the screen to warm up.

Problem	Cause	Solution
Blank Screen	The screen saver was automatically initiated.	➤ Check if the *Power On* LED is flashing. If so, activate the screen by pressing in the lower right corner.
	The *Contrast* and/or *Brightness* control(s) need adjusting.	➤ Adjust the *Contrast* and *Brightness* controls.

Contacting the Customer Service Group

If you encounter any difficulty while operating this product, please call EXFO at one of the offices listed below. Our Customer Service Group is available in North America from 7:30 a.m. to 8:00 p.m. (Eastern Standard Time), Monday to Friday.

EXFO Electro-Optical Engineering (Corporate Headquarters)
465 Godin Avenue
Vanier QC G1M 3G7
Canada

1 800 663-3936 (USA and Canada)
Tel.: (418) 683-0211
Fax: (418) 683-2170
support@exfo.com
www.exfo.com

EXFO Europe
Centre d'Affaires Les Metz
100, rue Albert Calmette
78353 Jouy-en-Josas, France

Tel.: 33-1 34 63 00 20
Fax: 33-1 34 65 90 93

8 Maintenance

Transportation and Storage

Maintain the temperature range within specifications when transporting or storing the unit. Transportation damage can result from improper handling. The following procedures are recommended to minimize the possibility of damage:

- Pack the product in the original packing material when shipping.
- Store the product at room temperature in a clean and dry area. Avoid high humidity or large temperature fluctuations.
- Keep the product out of direct sunlight.
- Avoid unnecessary shock or vibration.

For more information on environmental specifications, see *Technical Specifications* on page 55.

General Power Information about the FTB-300 UTS

Your FTB-300 UTS operates on DC power from either its internal batteries or from an AC/DC adapter/charger. The adapter/charger accepts from 90 V to 250 V.

The AC/DC adapter/charger provided with your FTB-300 UTS converts AC power to DC power from a standard power outlet. It plugs directly into the FTB-300 UTS AC/DC adapter/charger socket, allowing you to use the FTB-300 UTS even when batteries are low. However, to completely charge the batteries, the FTB-300 UTS must be powered off.

The FTB-300 UTS comes with two nickel metal hydride (NiMH) batteries and provides a power conservation system. Having extra batteries on hand allows you to extend the operating time of the FTB-300 UTS when primary batteries run low.

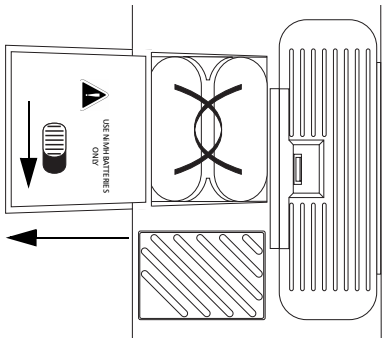
You can switch from battery power to the AC/DC adapter/charger or vice versa without turning off the FTB-300 UTS or losing data.

Replacing the Battery Pack

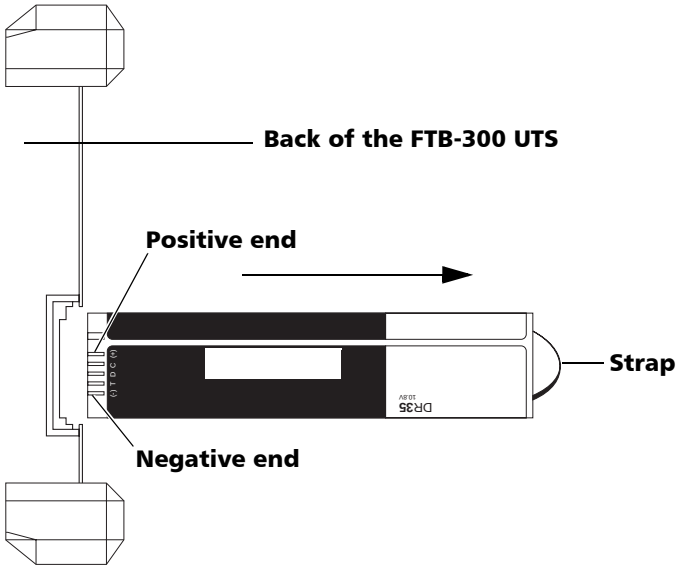
The battery LED lights up when batteries are low. Changing the batteries will reset the battery status indicator. The battery status indicator, found in the lower right-hand corner of the display when in the ToolBox 5 shell (see *Introducing ToolBox 5* on page 35) displays three question marks when you are changing the batteries. For Toolbox 5 to give an accurate reading, you must let the batteries run down completely and then recharge them fully.

To replace the battery pack,

1. Save all your traces.
2. Turn off the FTB-300 UTS.
3. Open the battery compartment located on the left panel of the FTB-300 UTS.



4. Remove each battery by pulling its strap.



5. Slide the new batteries into the compartment with the positive end up. They will not go in completely if inserted incorrectly.

6. Close the battery compartment.

Mainframe

Clean the FTB-300 UTS mainframe regularly to avoid build-up of dirt, dust, and other foreign substances. To do so, use a cloth dampened with soapy water, rinse with a damp cloth, and dry.

Touchscreen

Clean the touchscreen with a soft, non-abrasive cloth dampened with glass cleaner.

Hard Disk

Perform regular hard-disk-drive maintenance to keep the file structure in order and the disk well optimized.

Defrag

Over time, as applications read, write, and delete files, information stored on the FTB-300 UTS hard disk drive may become fragmented. To reorganize the files on the hard disk drive, and thus optimize performance, you should use the *Defrag* program once a month. To perform a full optimization and defragmentation, start up the ToolBox 5 shell and click on *Defrag Disk to Improve Disk Speed* found on the *Setup* page, under the *Recover* tab.

You can also run the defragmentation utility directly from Windows 95. To do so, from the *Start* menu, click *Programs>Accessories>System Tools>Disk Defragmenter* or, from DOS, type **`defrag`** at the C:\WINDOWS> prompt.

Scandisk

Scandisk is a program used to detect errors or bad sectors on a disk drive. It fixes and saves any bad sector, or marks it as unusable (for future reference). To execute the program, launch the ToolBox 5 shell and click on *Scan Disk to Remove File Problems* found on the *Setup* page, under the *Recover* tab.

You can also run the disk-scanning utility directly from Windows 95. To do so, from the *Start* menu, click *Programs>Accessories>System Tools>ScanDisk* or, from DOS, type **`scandskw`** at the C:\WINDOWS> prompt.

9 Technical Specifications

Computer Specifications	
Hard disk capacity	2.1 GB
RAM	16 MB
CPU	Intel 80486 DX4–75

Electrical Specifications	
Max. AC input	100–240 VAC,1.5 A, 50–60 Hz
Output current	15 VDC, 3.6 A
Overvoltage category	II

Mechanical Specifications	
Size (H×W×D)	22.9 × 30.5 × 10.1 cm 9 × 12 × 4 in
Screen size Monochrome Color	 9.4 in 8.4 in
Screen resolution	640×480 dpi
Weight	6.52 kg/14.35 lb.

Environmental Specifications	
Operational temperature	-5°C to 50°C (23°F to 122°F)
Storage temperature	-20°C to 60°C (-4°F to 140°F)
Relative humidity	95% non-condensing
Pollution degree	4

10 Warranty

General Information

EXFO Electro-Optical Engineering, Inc. (EXFO) warrants this equipment against defects in material and workmanship for a period of one year from the date of original shipment. EXFO also warrants that this equipment will meet applicable specifications under normal use.

During the warranty period, EXFO will, at its discretion, repair, replace, or issue credit for any defective product. This warranty also covers recalibration during two years if the equipment is repaired or if the original calibration is erroneous.

IMPORTANT

The warranty can become null and void if

- **the equipment has been tampered with, repaired, or worked upon by unauthorized individuals or non-EXFO personnel,**
- **the warranty sticker has been removed,**
- **case screws, other than those specified in this manual, have been removed,**
- **the case has been opened, other than as explained in this manual,**
- **the equipment serial number has been altered, erased, or removed,**
- **the equipment has been misused, neglected, or damaged by accident.**

This warranty is in lieu of all other warranties expressed, implied or statutory, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. In no event shall EXFO be liable for special, incidental, or consequential damages.

Liability

EXFO shall not be liable for damages resulting from the use of the purchased product, nor shall be responsible for any failure in the performance of other items to which the purchased product is connected or the operation of any system of which the purchased product may be a part.

EXFO shall not be liable for damages resulting from improper usage or unauthorized modification of the product, its accompanying accessories and software.

Exclusions

EXFO reserves the right to make changes in the design or construction of any of its products at any time without incurring any obligation to make changes whatsoever on units purchased. Accessories, including but not limited to fuses, pilot lamps and batteries used with EXFO's products are not covered by this warranty.

Certification

EXFO certifies that this equipment met its published specifications at the time of shipment from the factory.

Service and Repair

EXFO commits to providing product service and repair for five years after the date of purchase.

To obtain service or repair for any equipment, follow the procedure below:

1. Call EXFO Customer Service Group. Support personnel will determine if the equipment requires service, repair, or calibration.
2. If the equipment must be returned to EXFO or an authorized service center, support personnel will issue a Return Merchandise Authorization (RMA) and an address for return.

IMPORTANT

Never send any unit or accessory back to EXFO without a Return Merchandise Authorization (RMA).

3. If the unit has an internal storage device, do a backup of your data before sending the unit for repairs.
4. Pack the equipment in its original shipping material. Be sure to include a statement or report fully detailing the defect and the conditions under which it was observed.
5. Return the equipment, prepaid, to the address given by the support personnel. Be sure to write the RMA on the shipping slip. EXFO will refuse and return any package which does not bear an RMA.

Note: *A test setup fee will apply to any returned unit which, after test, is found to meet the applicable specifications.*

After repair, the equipment will be returned with a repair report. If the equipment is not under warranty, the customer will be invoiced for the cost appearing on this report. Return-to-customer shipping costs will be paid by EXFO for equipment under warranty. Shipping insurance is at the customer's expense.

This page is intentionally left blank.

A Running DOS on your FTB-300 UTS

Running DOS Applications

Since the FTB-300 UTS is built on a PC architecture, it can run DOS applications.

To access DOS from the ToolBox 5 shell,

1. Click on the *Quit Shell* button to return to Windows 95. For more information on the ToolBox 5 shell, refer to the *ToolBox 5 Shell and Utilities* Instruction Manual.
2. From the *Start* menu, click *Programs>MS-DOS Prompt* or restart the FTB-300 UTS in DOS using the *Boot into DOS* shortcut.

You can then install or run your DOS applications as you would on any standard PC.

Using DOS Commands

The table below contains the most useful DOS commands. Text in ***italics*** must be replaced with the correct name and path. Punctuation has been omitted unless required in the command. All commands must be followed by **<enter>**.

Command	Function
DIR	To see a list of the files (or test results) that are located in a particular directory, type **DIR.** The list of all the files contained in that directory will be displayed on the screen, including the name of the file, its extension, size, and the date and time stamp.
CD\	To go directly to the root directory when you are in a subdirectory.
CD..	To go to the above directory.

Command	Function
CD	To change your working directory, type **cd *directory name***
COPY	To copy selected files from one directory to another, type **copy *filename directory*:**
DEL	To delete files, type **del *filename***
MD	To create a new directory, type **md *directory name***
RD	To delete a directory, first delete all files in the directory and then type **rd *directory name***
FORMAT A:	To format a floppy disk, type **format a:**
HELP	To display DOS help, type **help *command name***

In DOS, the prompt line indicates where you are. For example, if you see A:\TRACES>, this means that you are on drive A in the TRACES directory.

In the DOS environment, you can setup the FTB-300 UTS to start directly in DOS or Windows by typing respectively **bootdos** or **bootwin** in the root directory of the DOS prompt.

Using a Mouse and Touchscreen in DOS

In DOS, it is possible to operate the FTB-300 UTS with a mouse and the touchscreen at the same time. To do this, the program MOUSE.COM must be in the DOS directory.

IMPORTANT

If you are using a mouse as a pointing device, the communication parameters will not be correct for serial transfers or.

To install the mouse driver in the FTB-300 UTS,

1. Exit the ToolBox 5 shell and return to DOS.
2. Type **`cd\`**
3. Type **`copy autoexec.bat autoexec.bak`**
4. Type **`edit autoexec.bat`**
5. Place the cursor at the beginning of the line that reads **`rem mouse`**
6. Delete the **`rem`**
7. When finished, hold the left **`alt`** + **`f`**. Then press X to exit.
8. Restart the FTB-300 UTS.

Using PC Cards (aka PCMCIA) in DOS

When the PC Card reader is installed, the following PC cards can be used:

- SRAM cards, to store test files
- flash cards, to store test files
- modem card, to communicate over a standard telephone or data line

The following sections cover driver installation for SRAM cards, flash cards, and fax/modem cards in the DOS environment. If you are using Windows 95, follow the instructions that will be displayed on screen as the Windows 95 hardware configuration system detects the cards.

Note: *In the following sections, punctuation has been removed in the DOS commands to avoid confusion. If punctuation is included in the text, it is required to execute the command.*

SRAM Card and Enabling SRAM Card Drivers

While the FTB-300 UTS is running, insert the SRAM card into the PC Card reader.

To enable the SRAM card driver,

1. Plug an external keyboard into the PS/2 port. For more information on using an external keyboard, see *Installing an External Keyboard* on page 39.
2. Exit the ToolBox 5 shell. For more information on the ToolBox 5 shell, see *Introducing ToolBox 5* on page 35.
3. At the DOS prompt, type **`cd\`**
4. Type **`edit config.sys`**
5. In the CONFIG.SYS file, enable the MTSRAM.EXE and MTDDRV.EXE drivers by deleting the **`rem`** command in the command lines below.

   `rem devicehigh=c:\cardsoft\mtsram.exe`

   `rem devicehigh=c:\cardsoft\mtddrv.exe`
6. Press **`alt`** + **`f`** to access the *File* menu, then S to save your changes.
7. Exit the CONFIG.SYS file by choosing X from the *File* menu.
8. Restart the FTB-300 UTS to load the SRAM drivers. A double tone will be heard. The SRAM card has been detected and communication has been established between it and the FTB-300 UTS.

➤ If no tone is heard, the PC Card driver may not be installed on the FTB-300 UTS.

➤ If a single, low frequency tone is heard, communication cannot be established between the FTB-300 UTS and the SRAM card. The required PC Card driver may not have been properly installed, or the SRAM card may be defective.

In all cases, call EXFO. For more information, see *Contacting the Customer Service Group* on page 50.

Flash Card and Enabling Flash Drivers

With the FTB-300 UTS running, insert the flash card into the PC Card reader.

To enable the flash driver,

1. Plug in an external keyboard using the PS/2 port. For more information on using an external keyboard, see *Installing an External Keyboard* on page 39.
2. Exit the ToolBox 5 shell. For more information on the ToolBox 5 shell, see *Introducing ToolBox 5* on page 35.
3. At the DOS prompt type **`cd\`**
4. Type **`edit config.sys`**
5. In the CONFIG.SYS file, enable the MTAA.EXE, MTAB.EXE, MTI1.EXE, MTI2P.EXE, MTDDRV.EXE, and SSMSFLSH.SYS drivers by deleting the **`rem`** command in the command lines below.

   ```
   rem devicehigh=c:\cardsoft\mtaa.exe
   rem devicehigh=c:\cardsoft\mtab.exe
   rem devicehigh=c:\cardsoft\mt11.exe
   rem devicehigh=c:\cardsoft\mtl2p.exe
   rem devicehigh=c:\cardsoft\mtddrv.exe
   rem devicehigh=c:\cardsoft\ssmsflsh.sys
   ```

6. Press **`alt`** + **`f`** to access the *File* menu, then S to save your changes.
7. Exit the CONFIG.SYS file by choosing X from the *File* menu.
8. Restart the FTB-300 UTS to load the flash drivers. A double tone will be heard, indicating that the flash card has been detected and that communication has been established between it and the FTB-300 UTS.

➤ If no tone is heard, the PC Card driver may not be installed on the FTB-300 UTS.

➤ If a single, low frequency tone is heard, communication cannot be established between the FTB-300 UTS and the flash card because the required driver is disabled.

In all cases, call EXFO. For more information, see *Contacting the Customer Service Group* on page 50.

Modem Card

While the FTB-300 UTS is running, insert the modem card into the PC Card reader. A double tone will be heard, indicating that the modem card was detected and that communication was established between it and the FTB-300 UTS.

➤ If a single, low-frequency tone is heard, communication cannot be established between the FTB-300 UTS and the modem card. The required PC Card driver may not have been properly installed, or the modem card may be defective.

In all cases, call EXFO. For more information, see *Contacting the Customer Service Group* on page 50.

Index

F

H

I

K

L

M

N

O

P

R

S

T

U

V

W