



ALVA ABT3 series
Braille Displays
User Manual

Version 4.2 and Up

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Preface

Congratulations on choosing the ALVA ABT3 series. We hope you will soon develop a working knowledge of its basic operation. With time and experience you will familiarize yourself with the wealth of possibilities the ALVA ABT3 series has to offer.

If you have any questions concerning the use of the ALVA ABT3 series, please contact your distributor. Alternatively, if you want to contact us directly, you can reach us at the following address. Your suggestions are greatly appreciated.

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Glossary

Below you find a brief description of the most important terms that are used throughout this manual. When you are reading sections of the manual and you come across a word you do not understand, check this glossary to find out its meaning.

ABT

Abbreviation for ALVA ABT3 series. Within the ABT3 series, there are three models: ABT320, ABT340 and ABT380. The last two digits indicate the number of braille cells (status cells not included).

cursor line

The line on the screen that contains the cursor.

firmware

A special type of software that you do not have to load into memory. Firmware is implemented internally on board the ALVA ABT3 series in an EEPROM (Electrical-Erasable Programmable Read-Only Memory) or FLASHROM.

hardware cursor

The position on the screen where you can type new text or enter data. This position is usually indicated by a blinking horizontal or vertical line or a little block in a different colour.

host mode

The mode the ALVA ABT3 series is in when it is switched on and the software is active. For more information see section 4.10 host mode and local mode special functions on page 48.

local mode

A menu in the ALVA ABT3 series where system parameters, hardware settings, etcetera can be changed and saved. For more information see section 4.10 host mode and local mode special functions on page 48.

software cursor

A colour combination of fore- and background colours often used to attract a sighted person's attention to a certain area of the screen, such as with inverse video or a sharp colour contrast. A software cursor is, in general, represented by a contrast in colour with respect to the characters around it, or even by a specific ASCII-character.

status cells

The braille cells on the left-hand side of the ALVA ABT3 series, separated from the other braille cells by a blank cell. These cells are used to display line numbers, cursor position and other status information. For more information see section 4.5 the status cells on page 25.

touch cursor or TC

The row of button switches immediately above the braille cells. Over the status cells they are called TCS1-6 (1-3 for the ABT320 and 340), over the other braille cells they are indicated as TC1-80 (1-20 for the ABT320 and 1-40 for the ABT340). For more information about how they are used, see section 1.4 the touch cursor on page 2.

INTRODUCTION

How to use this manual

This manual describes the ALVA ABT3 series and the software program that is used to operate them. The ALVA ABT3 series (ABT for short) is a braille display that represents the information on the screen in braille.

The manual is divided into five parts:

Part	Name	Contents
Part 1:	Description of the hardware and installation of the software	contains a description of the hardware and instructions on how to install the ABT software. You can skip the section about software installation if that has been done for you.
Part 2:	Getting Started Guide	gives instructions for basic operation of the braille display. This section is particularly suitable if you have little or no experience with braille displays, but may be skipped by more experienced users.
Part 3:	Frequently Asked Questions	discusses a number of frequently asked questions and the answers to these questions. A quick way of finding the solution to your problem.
Part 4:	Braille Reference Guide	a comprehensive reference guide to all the braille functions of the ABT-software.
Part 5:	For Further Reading	a number of sections for further reading containing more in-depth information on a variety of topics.

A Quick Reference Guide with a list of all the commands can be found at the back in Appendix A. It is also supplied separately in print and included in the braille version of the manual. In addition, the braille manual consists of parts 1, 2 and 3. The entire manual can be found in ASCII format on the ABT program disk.

The README file, which can be found in the \ALVA\DOC-UK subdirectory on your harddisk, contains up-to-date information not yet included in the manual. Check this file for the latest additions or changes to the software.

What the ALVA ABT3 series does

The ALVA ABT3 series displays one line or part of a line at a time from the PC's computer screen. In a DOS environment the computer screen normally consists of 25 lines, each line 80 characters wide. Various

models of the ALVA ABT3 series display 20, 40 or 80 characters at a time on the main display cells, corresponding to the characters shown on the screen.

With the operating keys you can scan up and down the screen. The line selected is immediately translated into braille on the ALVA ABT3 series.

To the left of the display cells are the status cells. These cells help you determine the position of the cursor, the position of the braille display and various colour combinations on the screen.

The ALVA ABT3 series program does not attempt to translate graphic information into braille, and can only be used in conjunction with programs that operate in the alpha-numeric (text) mode. However, the ALVA ABT3 series can also represent the extended ASCII-character set between values 128 through 255. Windows 3.1 DOS-boxes can also be displayed on the ALVA ABT3 series. Please check the files ABTWIN.APP and ABTOB.APP in the \DOC\XX subdirectory on your harddisk, where XX is replaced by the appropriate code for your country.

A note about 6 and 8 dot braille

The ALVA ABT3 series displays braille in either 6 dot or 8 dot braille. 6 dot braille is the standard way braille is represented in an embossed format. 8 dot braille has two additional dots located directly beneath the 6 dot cell. Dot 7 appears directly below dot 3 and dot 8 directly below dot 6. Dot 7 typically indicates capitals and dot 8 indicates attributes and other information.

In European braille the numbers 1 through 9 are represented as the American letters "a" through "i" with dot 6 added and zero is represented by dots 3, 4 and 6. In American computer braille, numbers are displayed by lowering the letters "a" through "j" one dot.

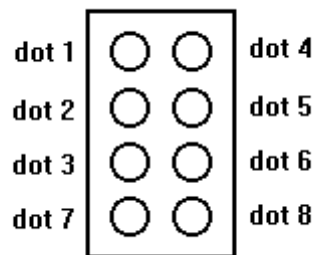


Figure 1: The dots of a braille cell

PART 1: DESCRIPTION OF THE HARDWARE AND INSTALLATION OF THE SOFTWARE

1.1 ALVA ABT3 series

The ALVA ABT3 series is a braille display with a touch cursor (TC). This manual describes the current models of the ALVA ABT3 series and the software that is needed to operate it. The current models are:

- ABT320, a portable battery powered 23 cell braille display;
- ABT340, a portable battery powered 43 cell braille display;
- ABT380, a desktop 85 cell braille display.

Whenever “ABT” is used it refers to all models. Whenever ABT320, ABT340 or ABT380 is used it refers to that specific model.

1.2 Description of the front panel

The braille display is housed in a flat plastic case on which you will probably want to place your keyboard, making the braille cells conveniently located within your reach. You will find the operating keys for the braille display at the front edge of the case. A long narrow strip of single buttons above the braille cells is called the touch cursor.

The operating keys, conveniently located along the front edge of the case, are designed to be easily operated by both thumbs.

From left to right the keys for the ABT380 are:

PROG	HOME	CURSOR	UP	DOWN	DOWN	UP	CURSOR	HOME	PROG
------	------	--------	----	------	------	----	--------	------	------

Figure 2: The front panel operating keys of the ABT380

For the ABT320 and 340 the keys are:

PROG	HOME	CURSOR	UP	LEFT	RIGHT	DOWN
------	------	--------	----	------	-------	------

Figure 3: The front panel operating keys of the ABT320 and 340

1.3 Description of the back panel

At the back of the ALVA ABT3 series case are the various connectors for interfacing the ABT to the computer, the keyboard, the optional keypad or other accessories, the power supply and the power switch. The ABT320 connectors, when you are facing the back of the ABT are, from left to right:

1. Power switch - depressed to the top is on;
2. Built-in microphone - upper area;
3. Power adapter plug - lower area;
4. Serial port 1 - 9 pin male D connector;
5. Parallel computer input port - 25 pin female D connector;
6. Parallel printer output port - 25 pin female D connector;

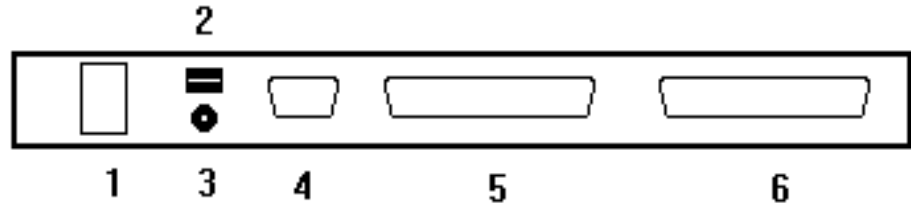


Figure 4: The connectors on the back panel of the ABT320

The ABT340 and 380 connectors, when you are facing the back of the ABT are, from left to right:

1. Power switch - depressed to the right is on;
2. Built-in microphone - upper area;
3. Power adapter plug - lower area;
4. Computer keyboard input port - round 5 pin DIN connector;
5. ABT to computer keyboard socket - round 6 pin DIN connector;
6. Serial port 1 - 9 pin male D connector;
7. Serial port 2 - 9 pin male D connector;
8. Parallel computer input port - 25 pin female D connector;
9. Parallel printer output port - 25 pin female D connector;
10. Earphone jack - Audio output.

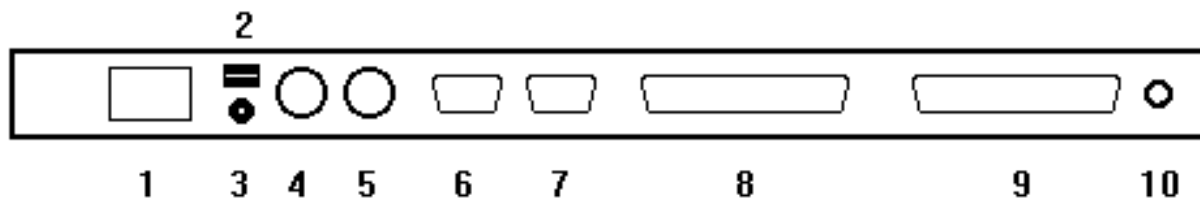


Figure 5: The connectors on the back panel of the ABT340 and ABT380

1.4 The touch cursor

The touch cursor is situated immediately above the braille display. Each braille cell is associated with a raised dot or button. When you are working with a text editor and you press one of the TC buttons immediately above the braille cells, the cursor moves to the position of the corresponding braille cell. It also has special functions which are described later in the manual.

These buttons can be divided in two groups. In this manual they are referred to as listed below.

For the ABT380:

- TCS 1-6 The touch cursor buttons above the status cells;
 TC 1-80 The touch cursor buttons above the braille cells.

For the ABT320 and ABT340:

- TCS 1-3 The touch cursor buttons above the status cells;
 TC 1-20(40) The touch cursor buttons above the braille cells;

1.5 Installing the ABT software

NOTE:

If someone else has connected the ABT to the PC and installed the software for you, you can skip this section and continue with part 2: getting started guide starting on page 9.

Briefly, all that is necessary to have the ALVA ABT3 series running is to supply power to it, connect it to a computer either by means of a parallel or serial cable, and run the ABT software.

1.5.1 Parallel communication

The ABT can be connected to one of the computer's parallel ports by means of the parallel cable included with the terminal. Connect one end of this cable to the parallel-In port located on the back of the ABT. The other end connects to the parallel port on the computer.

WARNING:

*Although the parallel-in and printer-out ports are physically indistinguishable on the model 3 series, do not confuse the two ports. The ABT will **not** function properly if the connections are reversed. See section '1.3 description of the back panel' on page 1 for more details.*

Important Note:

If you experience problems with parallel communication, try setting the printer port to normal or AT-compatible. Although the ABT driver should function correctly with bi-directional printer ports, this may not always work.

The ABT will not work correctly with a device such as a CD-ROM player or an external disk drive that uses the bi-directional capabilities of the printer port or uses the printer signals in a way non-standard for a printer. Only a printer can be connected to the parallel through-connection of the ABT.

On the ABT, the use of a dongle may also give problems. In all these cases a separate printer port or the serial port should be used.

1.5.2 Serial communication

To connect the ABT to one of the PC's serial ports use what is called a 'null modem cable'. Ask your dealer about this cable. The ABT's serial port or ports have the same pin connections as the serial port of a standard IBM PC. The cable is connected to the ABT's serial port (either serial port 1 or serial port 2).

1.5.3 Changing from parallel to serial communication and vice versa

To change from parallel to serial connection and vice versa, simultaneously press the PROG, HOME and CURSOR-keys to enter local mode. Subsequently press one of the following TC buttons:

- TCS1 to switch over to parallel communication;
- TCS2 to switch over to serial communication on ser2;
- TCS3 to switch over to serial communication on ser1.

A short beep can be heard that indicates that a change has been made. The parallel or serial communication settings are remembered by the ABT, even when it is switched off.

Since COM3 and COM4 on the PC are not standard, operation with these COM ports is not guaranteed. As COM3 can make use of the same interrupt as COM1, a peripheral device working with COM3 can disrupt the communication between the PC and the ABT working with COM1. A number of facilities are incorporated in the ABT program to ensure that the communication with the ABT remains intact. It is still possible, however, for it to be interrupted by your peripheral device. The same potential problem applies to COM4, since peripherals using COM2 could disrupt the ABT using COM4.

NOTE:

When serial communication with a PC does not function properly, see the section called '4.10.5 serial connections (ser)' on page 50 and set the serial port to 'alva' mode.

In the case of no communication, the actual setting can be found in the status cells. The status cells will show one of the following options: p for parallel communication, s2 for communication via serial port 2 and s1 for communication via serial port 1 (referring to these connections on the ABT, not the computer).

1.5.4 Using the installation program

The installation program that is provided with your ALVA ABT3 series allows you to install the ABT-software and the documentation on the harddisk of your computer. Once the software has been installed, the software is either started automatically when you start your computer, or you can start the software by using the ALVA.BAT batch file.

The installation program can also be used to update the firmware (if applicable).

WARNING:

To make sure your ABT program disks are not accidentally damaged, we recommend that you make at least one backup copy. To do this, use the following disk duplication command from a DOS-prompt.

- Put program disk 1 in drive A.

*- type: **diskcopy a: a: /v** and press <Enter>*

and then follow the instructions given on the screen.

Repeat the same procedure for program disk 2.

Consult a DOS-manual for further details on the DISKCOPY command.

You can install the ABT software by following the steps described below:

1. check if the braille display is switched on and connected to the mains through the power adapter.
2. check if the braille display is connected to one of the PC's parallel ports (LPT1 is default) or to one of the serial ports. If you want to use serial communication, you must change the settings in the local mode menu. See section 1.5.3 changing from parallel to serial communication and vice versa on page 3 for more details.
3. Switch on the PC and insert software disk 1 in the disk drive.

There are two ways to install the ABT software on the harddisk of your PC.

- 4a. When you install the software for the first time or when you can read the questions on the screen without the aid of a braille display or speech synthesiser, type **install** at the DOS-prompt, press <Enter> and follow the instructions on the screen. Continue with step 5.

- 4b. If you want to use an ALVA braille display during installation, you should start the installation program, using the following command line:

install <abt> <port>

where:

<abt> = abt240	when you are using an ABT240.
<abt> = abt280	when you are using an ABT280.
<abt> = abt320	when you are using an ABT320.
<abt> = abt340	when you are using an ABT340.
<abt> = abt34d	when you are using an ABT340 Desktop.
<abt> = abt380	when you are using an ABT380.

<port> = 1	for LPT1:
<port> = 2	for LPT2:
<port> = 3	for LPT3:
<port> = 4	for LPT4:
<port> = c1	for COM1:
<port> = c2	for COM2:
<port> = c3	for COM3:
<port> = c4	for COM4:

The installation program will now start the appropriate software, so that you can carry out the installation by yourself, without the help of others.

TIP

During installation, we suggest you set PROG-F10 to Automatic Cursor. It may then be necessary to move the arrow keys, in order to have the braille display show the selected item.

5. upon completion of the installation program, remove software disk 2 from the disk drive and reset the PC. This completes the installation.

NOTE:

To break off the installation at any moment, press Escape, followed by Enter. To continue the installation, press Enter.

1.5.5 Memory Management

In order to optimize the memory management of your computer, you can load the ABT software into EMS memory. This is not part of the standard installation procedure.

WARNING:

You should only optimize the memory management of your PC yourself if you know what you are doing. Make a copy of your AUTOEXEC.BAT and CONFIG.SYS files before you start and consult your local distributor if you are unsure what to do.

ABTLOAD.EXE is used to load the software into EMS memory. It can be found in the \ALVA\BRAILLE directory. By using ABTLOAD.EXE you will free memory space below 1Mb. One program is not loaded into EMS, namely ABTLOAD.EXE itself. This program may, however, be loaded high by using the LOADHIGH command. Thus, even more conventional memory is made available.

If you want to free conventional memory, you must have an EMM driver installed in your CONFIG.SYS file.

Example of a CONFIG.SYS line:

device=c:\dos\emm386.exe ram

or if you use QEMM:

device =c:\qemm\qemm386.sys ram

ABTLOAD itself takes about 15Kb of memory space below 1Mb.

You can add ABTLOAD as a fourth parameter to the call of ABT.BAT, for example:

call abt 340 1 1 abtload (this is a line in the ALVA.BAT batch file)

NOTE 1:

The ABTLOAD program cannot yet be used for serial communication. If you try to do this by using the parameter c1 or c2, the system will crash.

When no EMS page frame is available, the program will give a warning message and ABTXXX.EXE will be loaded in low memory (if you are using ABT.BAT).

If you are using an EMM manager but with the parameter NOEMS, there is no page frame. Delete the NOEMS parameter.

If you are using the Stealth option of QEMM, a page frame is necessary and you will probably have more memory available than when using NOEMS.

You must keep in mind however, that the use of the Stealth option may make your system more susceptible to hang-up problems, depending also on the behaviour of your programs, so we cannot merely recommend using Stealth. Another constraint when using Stealth is that you must add the DBF=2 option to your QEMM line in CONFIG.SYS (this will be indicated by your system).

When you use QEMM, you can also use the VIDRAM program, that is part of the QEMM package, to free more conventional memory. Please refer to the documentation that comes with QEMM.

To use ABTLOAD, you should put it in front of the normal command that you use to start the ABT3XX program:

abtload abt340 1**NOTE 2:**

You can load the ABTXXX program in high memory by using loadhigh (or lh) or loadhi if you are using QEMM as a fourth parameter. In addition, you must add the following command, otherwise the upper memory blocks are not used:

dos=high,umb

This command should be placed after the line:

device= c:\dos\emm386.exe ram

Or if you use QEMM, after the line:

device=c:\qemm\qemm386.sys ram

1.6 Miscellaneous notes

The braille display may remain attached to the computer's communication port whether or not the ABT program is active. Only when the ABT program is run, is the braille terminal 'connected' and active. In this way, sighted colleagues may use the computer as well, without the memory overhead of the ABT software. A printer may be connected to the Printer-Out connector on the braille display and be fully functional even if the ABT software is not loaded into memory. If you want to print, however, the ABT must be switched on.

Keyboard driver programs such as KEYBUK, KEYBFR, KEYBIT and KEYB supplied with many MS-DOS versions, enable typing symbols specific to different languages. These programs must be started (or loaded) before the ABT-program. If this order is not observed, a substantial delay may occur in the processing of keystrokes.

A special program ABTSET.EXE can be used to load preset parameters for the braille display system. The ABT software recognizes the application that is loaded and automatically selects the appropriate settings for that application. See section 4.11 saving and loading braille parameter settings (abtset) for further details.

The program ABTTAB.EXE can be used to change how the ABT displays certain symbols. For instance, it might make more sense to represent a vertical form symbol that is often used by applications to delimit a window or a box by dots 1, 2, 3, 7, if in the eight-dot mode. The use of the ABTTAB program is further explained in section 4.12 changing and checking a braille table (abttab).

NOTE:

Both the ABTSET.EXE and ABTTAB.EXE programs can be called from a batch file as well, so that parameter settings can vary according to the application used.

1.7 Sample AUTOEXEC.BAT file

The following sample AUTOEXEC.BAT file shows how to automate loading an ABT program. A DOS-manual should be consulted for explanations of any of the DOS-commands used here:

```
REM Sample AUTOEXEC.BAT file that automates
REM the loading of the ABT program.
REM
REM We assume a model 340 ABT, and a parallel connection to LPT1
```

```
REM The software was installed to C:\ALVA
REM
ECHO OFF
PATH C:\;DOS;C:\ALVA
PROMPT $P$G
SET TEMP=C:\DOS
CD\ALVA
REM The following line can be preceded by LH if it is to be loaded into high memory
ABT340 1
CD BRAILLE
ABTSET ALVA.LSE
ABTTAB MYTABLE.TAB
CD\
REM . . .
REM Place other commands here.
```

PART 2: GETTING STARTED GUIDE

Introduction

This Getting Started Guide offers a practical approach to getting to know the ABT. After you have read through this section, you will be able to carry out a number of basic functions. For a comprehensive survey of the braille functions of the ABT please refer to Part 4 of this manual, starting on page 21.

This Getting Started Guide consists of the following sections:

- some basic principles regarding the braille display (section 2.1);
- the operating keys and how they work (section 2.2);
- elementary operation of the braille display (section 2.3);
- a practical exercise with the ABT (section 2.4);
- advanced functions (section 2.5).

2.1. Some basic principles regarding the braille display

The braille display can be regarded as a small window that represents part of the screen. The size of this window depends on the size of the braille display. With the ABT380 one full line of the screen is shown in braille, with the ABT340 half a screenline is shown and with the ABT320 a quarter screenline. By using the operating keys you can decide which part of the screen is represented in braille. The blinking underscore sign marks the only place on the screen where new text can be entered or corrections be made.

The braille display will be where the cursor is, unless the braille display is moved to a different part of the screen by means of the operating keys. However, as soon as you enter new text, the braille display will jump back to the cursor position.

The ergonomic design of the ABT allows easy access to the braille functions.

2.2 The operating keys and how they work

At the front side of the ABT you find ten (ABT380) or seven (ABT320 and ABT340) rubber operating keys. With these keys the braille display can be moved over the screen in order to systematically read the screen or to jump to a particular position and look for specific data. There is a difference between the order of the keys of the ABT380 on the one hand and the ABT320 and ABT340 on the other. For the ABT380 the keys are, from left to right:

- PROG: gives access to the ABT-menu. With this menu the system parameters can be consulted or changed.
- HOME: Moves the braille display to the top left-hand corner of the screen. Pressing the HOME-key a second time moves the braille display to the bottom line of the screen.
- CURSOR: Moves the braille display to the line that contains the cursor.
- UP: Moves the braille display one line up.
- DOWN: Moves the braille display one line down.
- DOWN: Moves the braille display one line down.

UP: Moves the braille display one line up.

The three operating keys on the right side of the ABT380 model have the same function as the first three keys on the left-hand side but in the opposite order. They are there for your convenience.

For the ABT320 and ABT340 the order of the operating keys is from left to right:

PROG: gives access to the ABT-menu. With this menu the system parameters can be consulted or changed.

HOME: Moves the braille display to the top left-hand corner of the screen. Pressing the HOME-key a second time moves the braille display to the bottom line of the screen.

CURSOR: Moves the braille display to the line that contains the cursor.

UP: Moves the braille display one line up.

LEFT: Moves the braille display 40 or 20 positions to the left (reading backwards, so to speak).

RIGHT: Moves the braille display 40 or 20 positions to the right (this is the actual reading key).

DOWN: Moves the braille display one line down.

2.3 The screen and the braille display

With DOS-applications, most computer screens have 25 lines, each line having 80 positions (columns). Lines are not always entirely filled. The braille display can be regarded as a small window that represents part of the screen. The size of this window depends on the size of the braille display. With the ABT380 one full line of the screen is shown in braille. With the ABT340 half a screenline is shown and with the ABT320 a quarter screenline. This means that with the ABT380 you can read the entire screen in 25 steps and in the case of the ABT340 in 50 steps. For the ABT320 this would take 100 steps.

2.3.1 The cursor

The braille display can be used to read any part of the screen. Movement of the cursor, however, depends on the program you are working with. The cursor is the blinking underscore sign that marks the only place on the screen where new text can be entered or where corrections can be made.

2.3.2 The touch cursor

The touch cursor is situated immediately above the braille display. Each braille cell is coupled with a raised dot. They have the following functions:

TCS: bring the braille display to a particular line or reference point;

TC: bring the cursor to the corresponding braille cell (this only applies to word processing programs).

2.4 An exercise

In this section some of the basic possibilities of the ABT will be discussed, using WordPerfect 5.1 as a practical application. In order to continue, the following conditions should be met:

- The braille display must be connected to the PC so that, when the PC is switched on a number of characters appear on the braille display;

- The ABT software must be installed on the PC's harddisk and be started up automatically when the PC is switched on;
- WordPerfect 5.1 should be installed on the PC's harddisk.

With the exercise that follows in the sections below you will learn how to use the ALVA ABT3 series. Each section discusses a different aspect of the braille display.

2.4.1 Moving the braille display over the screen

Start the computer. Depending on which option you have chosen during installation, the ABT software is then either started automatically or you should do so by manually typing ALVA at the DOS prompt. Start WordPerfect 5.1.

Type the months of the year, starting with January. For each month use a new line (this means you have to press the <Enter> key after each month, including December).

In the first two status cells on the left-hand side of the braille display you can read the letter "m", while the third status cell shows one or more dots. The status cells give important information about, among others, the position of the braille display and the cursor. As was said before, most screens have 25 lines. With the ABT each line is represented as a letter.

The first line (at the top of the screen) is represented by the letter "a", while the bottom line is represented as "y". The letter in the first status cell indicates the line that contains the cursor. If this is the letter "m", this means the cursor is now on line thirteen.

The letter in the second status cell represents the line that is currently shown by the braille display. So, if the second status cell shows the letter "m" as well, this means the braille display currently displays (part of) line thirteen.

Conclusion:

After you have entered the months of the year, both the cursor and the braille display are on line thirteen. Both the first and the second status cell show the letter "m".

2.4.2 Using the ABT operating keys

We will now take a look at the function of the operating keys, starting on the left-hand side:

The PROG-key

By pressing the PROG-key the ABT-menu is activated. We will not discuss this menu here. For a description please refer to section 4.7 the abt-menu starting on page 27.

The HOME-key

When you press this key the braille display will jump to the first line on the screen, where you can now read the word "january". The first status cell shows the letter "m", which means the cursor is still on line thirteen. The second status cell shows the letter "a", which means the braille display is now on the first line of the screen.

When you press the HOME-key once again, you will hear a low beep sound and the braille display is moved to the last screenline.

Since the HOME-key effectively has two functions, the difference between the two functions is marked by a beep sound. A low beep sound can be heard when you move the braille display to the bottom screenline. The first status cell now shows the letter "m", so the cursor is still on line thirteen. The second status cell shows the letter "y", indicating that the braille display is now on line twenty-five.

The CURSOR-key

When you press this key, the braille display will jump to the line that holds the cursor. In our example this means the braille display shows line thirteen and the second status cell shows the letter "m" again: both the cursor and the braille display are on line thirteen.

The UP-key

When you press this key once, the braille display shows the word "december" and the second status cell shows the letter "l". With the UP-key you move up one line within the same column.

The LEFT-key (only with 40 and 20-cell models)

When you press this key once, the braille display moves 40 or 20 positions to the left. When the braille display already shows the first part of a line, it moves to the last part of the previous line.

When, on a 40-cell model, you press this key a second time, the braille display shows the word “november”. The first status cell shows the letter “m”, so the cursor is still on line thirteen. The second status cell shows the letter “k”, indicating that the braille display is now on the first part of line eleven.

The RIGHT-key (only with 40 and 20-cell models)

This is the original reading key. When you press this key once, the braille display moves 40 or 20 positions to the right. When the braille display already shows the last part of a line, it moves to the first part of the next line.

When, on a 40-cell model, you press this key a second time, the braille display shows the word “december”.

The first status cell shows the letter “m”, so the cursor is still on line thirteen. The second status cell shows the letter “l”, indicating that the braille display is now on the first part of line twelve.

The DOWN-key

When you press this key once, both status cells shows the letter m, indicating that both the cursor and the braille display are on line thirteen. With the DOWN-key you move down one line within the same column.

NOTE:

The 80-cell models do not have a LEFT or RIGHT-key, as the braille display moves in steps of one full line.

Summary:

Using the keys described above you can move the braille display over the screen, jump to the cursor line or to the top or bottom screenline. The first two status cells always indicate the line number of the cursor and the braille display, respectively.

2.4.3 How to use the touch cursor

The row of buttons immediately above the braille display is called the touch cursor. For each braille cell there is a button.

When you press the HOME-key the braille display will jump to the first line of the screen. The braille display now shows the word “january”. When you press the button above the letter “j”, the cursor moves to this letter.

In the first two status cells the letter “a” can be read. The first “a” indicates that the cursor is now on line 1 and the second “a” that the braille display is also on line 1.

When you press the DOWN-key four times, the braille display shows the word “may”. When you press the button above the letter “y”, the cursor moves to this letter.

In the first two status cells the letter “e” can be read. The first “e” indicates that the cursor is now on line 5 and the second “e” that the braille display is also on line 5.

Finally, move the cursor to the first letter of the word “may” with the touch cursor.

Although sighted people normally use the arrow keys to move the cursor over the screen, the touch cursor provides an easy to use and reliable method to quickly move the cursor. Pressing the TC button above a particular braille cell moves the cursor to that position instantly so that corrections can be made very quickly.

2.4.4 Setting system parameters

As we have seen before, the left-most operating key on the ABT is the PROG-key. This key gives access to the braille display’s system parameters. The braille display temporarily takes over the function keys on the PC-keyboard. When you leave the ABT-menu by pressing the PROG-key again, the function keys are “released” and you can use them again for the program you were working with

before you opened the ABT-menu. Within the space of this section, we will not discuss the PROG F3 sub-menu. Please refer to part 4 of this manual, which starts at page 21.

When you press the PROG-key the first line of the ABT-menu appears on the top line of the screen and on the braille display.

abt menu: search functions partition parameters blocks status help

Note that the contents of the first two status cells has not changed after you pressed the PROG-key. In other words, the status cells do not give information about your position within the ABT-menu.

In order to work with the next paragraphs, we assume you still have the months of the year on your screen.

Move the braille display to the first screen line and bring the cursor to the letter "j" by pressing the TC button above that letter; the first two status cells both show the letter "a".

PROG F7 Cursor coupling

Press the PROG-key to open the ABT-menu. Now press function key F7. The braille display now emits a high beep sound. The word "january" now re-appears on the braille display.

Press the DOWN-key once. The braille display shows the word "february".

Press the DOWN-key a few times until the braille display shows the word "may". The first two status cells both show the letter "e". Although you have used neither the TC buttons, nor the arrow keys, the cursor and the braille display are nonetheless on the same line. This is the effect of function PROG F7: the UP and DOWN keys of the ABT act as CURSOR UP and CURSOR DOWN-keys respectively.

Now press the PROG-key and then function key F7. The braille display emits a low beep sound. Press the UP-key until the word "january" appears on the braille display.

The status cells show that the braille display is now on line 1 (the letter "a"), while the cursor is still on line 5 (the letter "e").

By default PROG F7 is switched off. When you switch it on, the UP and DOWN-keys act as cursor up or cursor down keys. This means the line that contains the cursor and the line represented on the braille display are always the same.

When you are reading large documents in WordPerfect 5.1 we advise you to switch PROG F7 on, as this enables you to comfortably read through the whole document using only the RIGHT or DOWN-keys.

If this function is not switched on and you reach the bottom line of the screen, you will need a WordPerfect 5.1 key-combination to get the next 24 lines on the screen.

PROG F7 can be switched off temporarily by pressing the HOME-key. The braille display can then be moved over the screen without affecting the position of the cursor. To resume function PROG F7, just press the CURSOR-key. The braille display will then jump to the cursor line and the cursor will move along with the braille display when you press the operating keys.

When you are working with MS-DOS, instead of WordPerfect 5.1, we advise you to switch PROG F7 off. In many DOS-applications the cursor cannot be moved up and down the screen, which may give the impression that the braille display does not work.

PROG F6 Skip empty lines

When you press the PROG-key and then function key F6, you will hear a high beep sound.

Press the DOWN-key until the word "december" is shown on the braille display.

Press the DOWN-key once more. The high beep can be heard again, while in the first two status cells the letters "e" and "y" can be read. This means the cursor is still on line 5, while the braille display has jumped from "december" on line 12 to line 25.

Press the UP-key once. You hear a high beep sound. The braille display shows the word "december" again and the second status cell indicates that the braille display has jumped from line 25 back to line 12 (the letter "l").

This demonstrates how PROG F6 works. When it is switched on, the braille display will skip blank lines or parts of lines and give a high beep sound with each skip. When switched off, you hear a low beep. In that case the braille display will not skip blank lines.

With PROG F7 switched on, apparently empty lines in WordPerfect 5.1 will not be skipped. This is because the lines still contain a code that is used for lay-out purposes, but invisible on the screen. We advise you to switch PROG F7 off in these cases.

PROG F5 Cursor tracking

Move the braille display to the first line on the screen by pressing the HOME-key once. Press the TC button above the letter "j" of "january".

Now press the PROG-key and then function key F5. You will hear a low beep sound. The function is now switched off.

Using the arrow keys on the PC-keyboard, move the cursor down four lines. The braille display still shows the word "january". In the first status cell you can see that the cursor is now on line 5 (the letter "e") while the braille display is still on line 1 (the letter "a" in status cell 2).

In one of the previous paragraphs we already said that, in principle, the braille display will always follow the cursor. By switching off PROG F5, this coupling of cursor and braille display is broken and the cursor can be moved over the screen independent from the braille display.

We advise you to switch off PROG F5 in the following cases:

- In some menu programs a clock is shown that changes each second. The braille display will always jump to that line. If you want to read the screen without this interruption, we advise you to switch PROG F5 off.
- In some programs an ongoing process is indicated by a continually increasing percentage number indicated somewhere on the screen. In that case, too, the braille display will jump to that changing percentage.

PROG F1

In many cases a high or low beep sound indicates whether a function is switched on or switched off. There is, however, a second method with which you can find out the current status of a particular function. This is done by pressing the PROG-key and then function key F1. On the braille display the following message appears:

F1 Show status of a menu option

If, by way of an example you then press function key F7, the following text appears on the top screenline and the braille display:

F7 off Cursor coupling (ABT up/down controls system cursor)

which means the braille display can be moved over the screen independent of the hardware cursor.

Note:

When you press function key F1 and then a different function key, the current setting for that function is given. Function keys F4 to F12 are toggles. This means you change the setting each time you press that function key. This can be repeated as often as you like. When you switch on a function a high beep sound can be heard. When you switch it off, a low beep sound can be heard. You can also check on the braille display what the current setting of a function is.

When you press F1 before you press a different function key, the ABT-menu remains active. In order to leave the program and return to the application you were working with, press the PROG-key.

When you do not press F1 before you press a different function key, the setting for that function is changed when you press this function key and you automatically leave the ABT-menu to return to the application you were working with.

PROG F1 can be used together with the function keys listed below:

- F2: Word wrap (only with the 20 and 40-cell models);
- F4: Attribute information;
- F5: Cursor tracking;
- F6: Skip blank lines;
- F7: Redefining ABT operating keys as cursor up/down;
- F8: Operate braille partition 1 or 2 (only with the ABT380);
- F9: Follow hard- or software cursor;
- F10: Automatic cursor switching;
- F11: Capitals indication;
- F12: Grade 2 braille.

This ends the practical exercise with your ABT.

2.5 Advanced functions

2.5.1 The F3 F12 Blocks function

Blocks are user-definable areas on the screen. If a change occurs within an area, the braille display can react. When a text appears at a particular place on the screen or when it disappears, the braille display carries out a number of actions.

F3 F12: x - Blocks (all) 1=off 2=on (press down for individual block)

The CURSOR-key can be used to switch all blocks on or off. This means that all blocks that are active will be monitored when F3 F12 is on.

When you make a mistake while changing block parameters and the result is that a particular action is continually carried out, switch off F3 F12 first and then de-activate the individual block that is causing problems. Finally, switch F3 F12 back on.

We recommend that you de-activate a block before you start changing its parameters.

Some practical examples for WordPerfect

Example 1:

Starting situation: you have started WordPerfect. You now want to monitor screen line 25, positions 1-30, so that the braille display will jump to this line whenever a message appears in this area.

1. Press the PROG-key on the ABT and select the "blocks" menu. This can either be done by pressing one of the TC buttons above the word "blocks", or by pressing function key F3 and then F12 on the computer keyboard.
2. Check if the "blocks" function is switched off. In that case option 1 is selected. If the function is switched on, press the CURSOR-key once. The number 2 changes into number 1.
3. Press the DOWN-key once and select the number of the block you want to use (1 to 7) with the CURSOR-key.
4. Press the DOWN-key and use the CURSOR-key to switch option "Monitoring" on (the number 2 should appear on your braille display)
5. Press the DOWN-key and choose option "select" by pressing one of the TC buttons above this word. In status cell 3 the letter "b" will start blinking. This indicates that you are defining a block.
6. Move the braille display to the beginning of line 25 with the operating keys of the ABT.
7. Press TC1 to define the beginning of the block. You will hear a low beep. Dots 7 and 8 of the braille cell underneath TC1 are now blinking.

8. Press TC30 to define the end of the block. You will now hear a high beep. Dots 7 and 8 of the first thirty braille cells are now blinking.
9. To finish, press the CURSOR-key. This brings you back to the blocks menu.
10. Press the DOWN-key and check the block definition.
11. Press the DOWN-key once again and select the appropriate action for step1 with the CURSOR-key. In this case that would be action 2: "update search string and display after a change".
12. Press the DOWN-key and select action 0 "End" for step 2.
13. Press the UP-key a number of times until the braille display shows:

F3 F12: 1 - blocks (all) 1=off 2=on (press down for individual block)

and switch all blocks on by pressing the CURSOR-key. The number 1 changes into number 2.
14. Leave the menu by pressing the PROG-key.

Result: whenever there is a change in the first part of line 25, the braille display will jump to this line. After you have read the message you can return to the cursor position by pressing the CURSOR-key.

Example 2:

Starting situation: as in example number one, but this time you want to hear a beep whenever there is a change in the first part of line 25. The braille display will not jump to this line.

1. Follow steps 1 to 10 as described under example 1.
2. Press the DOWN-key once again and select the appropriate action for step1 with the CURSOR-key. In this case that would be action 1: "update search string and beep after a change".
3. Follow steps 12 to 14 as described under example 1.

Result: whenever there is a change in the first part of line 25, you will hear a beep.

Example 3:

Starting situation: when you start the WordPerfect Speller, the braille display should automatically start following the software cursor that belongs to this function. When you leave the Speller, the braille display should follow the hardware cursor again. It is assumed that the message "1 Skip once" is already on the bottom left-hand corner of the screen and that you have defined a software cursor for the spelling checker.

1. Follow steps 1 to 10 as described under example 1.
2. Press the DOWN-key once again and select the appropriate action for step 1 with the CURSOR-key. In this case that would be action 5: "select software cursor 1 when search string found".
3. Press the DOWN-key and choose action 4: "select hardware cursor when search string not found" for step 2 with the CURSOR-key.
4. Press the DOWN-key and select action 0 "End" for step 3.
5. Press the UP-key a number of times until the braille display shows:

"F3 F12: 1 - blocks (all) 1=off 2=on"

and switch all blocks on by pressing the CURSOR-key. The number 1 changes into number 2.
6. Leave the "blocks" menu by pressing the PROG-key.

Result: as soon as you start the WordPerfect Speller, and the message "1 Skip once" appears at the beginning of line 25, the braille display will start following the software cursor. When you leave the Speller again and the message "1 Skip once" disappears, the braille display will follow the hardware cursor again.

PART 3: FREQUENTLY ASKED QUESTIONS

In this section you can find the answer to a number of questions or problems. They all deal with situations that, in our experience, you may come across sooner or later. In that case we hope this section will be useful and give you the answer you need to be able to go on working.

1. The ABT does not seem to work! What should I check?

Is the power adapter connected?

If it has been connected to the mains for some time it should be somewhat warm.

Is the ABT switched on?

Check the on/off switch at the back. Depressed to the right means the ABT is switched on (depressed in the up position for the ABT320).

Is the cable between the PC and the ABT connected properly?

For parallel connection it should be connected to the second D-shaped connector from the left (with the front of the ABT facing you).

For serial connection the serial cable should be connected to one of the small D-shaped connectors.

Is the communication setting correct?

Enter local mode by simultaneously pressing the PROG, HOME and CURSOR-keys.

If you are using a parallel connection, press TCS1;

For serial communication press TCS2 if the serial cable is connected to serial port 2 of the ABT or TCS3 if the serial cable is connected to serial port 1.

A beep sound indicates that a change has been carried out.

2. At DOS-command level the operating keys at the front of the ABT do not work

You may have been reading a document in a word processor. If this document was longer than 24 lines, you will have switched PROG F7 on (a high beep sound is heard). Subsequently, when you leave the word processor and return to the DOS-prompt or a menu in which the cursor waits on one particular line for your input, the braille display cannot be moved over the screen independent from the cursor. The solution is to switch off PROG F7 (a low beep sound can be heard).

3. Which should be switched on first, the PC or the ABT?

When you start working, switch on the computer first and then the ABT. When you stop working switch off in reverse order: first the ABT and then the PC.

4. If the ABT has internal batteries, can I leave it connected to the mains indefinitely?

Yes. The ABT can be connected to the power adapter indefinitely without harm to the system or components. Occasional exercising of the batteries by running the ABT on batteries until it runs down is helpful to extend battery life but is not necessary.

5. How long should the ABT be connected to the mains to fully recharge the batteries and how long will the batteries last then without being recharged?

When the batteries have run down so low that normal use of the braille display is not possible, fully recharging the batteries takes about 15 hours.

Under normal conditions, the batteries of the ABT320 and the ABT340 should provide enough energy to work on its own for a period of about seven hours.

6. The ABT emits four short beep sounds at regular intervals. What does this mean?

As the battery power is depleted to a minimum threshold, four quick audible beeps are emitted from the speaker in successive intervals. As the power level drops further, the time between successive intervals shortens, providing an idea of how much power remains. Consequently, you have approximately 30 minutes to connect the AC adapter. Note that 30 minutes is an approximation, depending on the amount of usage during this time.

7. The ABT emits short beep sounds of differing pitch at regular intervals. What does this mean?

A safety function has been added to the ABT software that gives a warning signal when a power adapter is connected that supplies more than 11.5 Volts. This safety function protects the ABT against damage.

When your ABT spontaneously starts giving beep sounds, the function can be switched off as follows:

1. Switch the ABT off;
2. Pull the power adapter plug out of the back of the ABT;
3. Put the plug back in while you keep TC5 depressed;
4. Release TC5.

In order to re-activate the function, follow the same procedure while you keep TC1 depressed. By default this function is switched on.

If your ABT has a FLASHROM memory, instead of an EEPROM (ask your distributor if this is the case for your ABT) and firmware dated 010197 or later, continue with:

5. Switch the ABT on;
6. Enter "local mode" by pressing the PROG, HOME and CURSOR keys all at the same time;
7. Leave the local mode by pressing the PROG-key.

The correct setting is now stored in memory, even after you have switched off your ABT.

8. How can I change from one braille table to another or make changes within a braille table?

With PROG F3 F1 you can select one of the four standard braille tables. With the ABTTAB program you can edit a copy of each braille table. You can then load the new table after you have started the ABT program. The ABTTAB program also allows you to load your own set of braille tables. Please refer to section 4.12 changing and checking a braille table (abttab) on page 56.

9. How can I find or select a software cursor?

The ABT offers you a number of easy to use, powerful functions to tackle this problem. Let us assume that you are looking for a combination of a fore- and background color that is the active item in a menu.

Method 1:

Switch PROG F10 to automatic. Switch PROG F9 to "hardware cursor" (you will hear a high beep sound) or "software cursor" (when you will hear a low beep sound), whichever you want first. When you use the arrow keys on the PC-keyboard to move the menubar and the braille display jumps to the active item, you will know what the correct setting for PROG F9 is.

Method 2:

When you switch PROG F4 to "attributes" you can systematically move the braille display over the entire screen until you find a different combination of dots. This usually means that there are more dots to a character than with the standard pattern. Keep the HOME+CURSOR-keys briefly depressed to see which text can be read there.

Now use the arrow keys on the PC-keyboard to move the bar representing the menubar to and fro. This will result in the appearance and disappearance of braille dots, indicating that is very likely the menubar. If this is indeed the case, switch PROG F4 to "text". Finally, select the software cursor by keeping the PROG+HOME-keys depressed and pressing one of the TOUCH CURSOR buttons above the characters that are part of the active item.

If you already know where the software cursor can be found, you can select it swiftly and effectively by only performing the last step of this method.

Method 3:

If you need to select a different software cursor on a screen where the contents change rapidly, the CURSOR+FUNCTION KEY may prove useful:

CURSOR+F1 selects the hardware cursor

CURSOR+F2 selects the color combination with the lowest frequency on the screen

CURSOR+F3 selects the color combination with the second lowest frequency on the screen,
etcetera.

NOTE 1:

You can quickly switch between the hardware cursor and three definable software cursors using the short-cuts CURSOR+KEY 4-7.

NOTE 2:

If you want the braille display to follow the hardware cursor again, switch PROG F9 to hardware cursor or press CURSOR+KEY 4. This will be accompanied by a low beep sound.

10. How can I read a document in WordPerfect 5.1 that is longer than 24 lines?

Take the following steps:

- Open the document;
- Press <Home><Home><Cursor down> en then <Home><Home><Cursor up>; this will put the document in the proper lay-out;
- Press the PROG-key followed by F7. When you hear a high beep sound, you can start reading. When you have reached line 24, the cursor will move along with the braille display each time you press the DOWN-key;

PART 4: BRAILLE REFERENCE GUIDE

This part of the manual contains descriptions of all the braille functionality built into the ABT hard- and software. As the name indicates, this part is intended for reference purposes. When you read through this part of the manual, you may come across subjects that you have read about in previous sections. For step-by-step instructions on how to use the ABT, please read part 2: getting started guide starting on page 9.

4.1 The ABT380 operating keys

The operating keys allow you to examine any part of the screen, without affecting the position of the cursor. The operating keys are located at the front edge of the case. The ABT380 has 10 operating keys. The other models all have 7 operating keys. These keys can be used with the thumbs, freeing the fingers to remain on the braille display while reading the text. From left to right the keys are:

PROG, HOME, CURSOR, UP, DOWN, DOWN, UP, CURSOR, HOME, PROG

The three function keys on the right side of the ABT380 model have the same function as the first three keys on the left-hand side but in the opposite order. They are there for your convenience.

The operating keys from left to right are explained below:

The PROG-key

By pressing the PROG-key, the ABT-menu is invoked. Its first line looks like this:

```
abt menu: search functions partition parameters blocks status help
```

There are essentially two avenues from which to choose.

(1) The fourth operating key (UP), and the fifth operating key (DOWN), may be used to examine the top-level menu and various types of status information. This includes the ABT software version number, a description of the operating keys, some screen attribute information, screen reference points, a survey of the function keys, and much more.

(2) Alternatively, the computer's function keys 1 through 10 may be pressed to examine or change a wealth of ABT system parameters. Refer to sections 4.9.1 overview of the function keys by application on page 32 and 4.9.3 function key operations (in numerical order) on page 36 for more information on how to navigate through the various sub-menus and function toggles.

The HOME-key

The HOME-key, in combination with other keys, may be used to move the braille display to various key areas of the screen. When the HOME-key is pressed and released, the braille display shows the top left portion of the screen. In order to display the last line of the screen, press the HOME-key again. As the HOME-key can effectively carry out two different actions, a jump to the last screen line is accompanied by a low beep. To jump to a user-definable screen reference point, press and hold the HOME-key and press any of the computer's function keys one through ten. Reference points are set by positioning the braille display at the position to be stored, then pressing the PROG-key, then press and hold the HOME-key, followed by the function key that will be assigned to the reference point. See section 4.8 reference points or jump windows on page 31 for more information.

The CURSOR-key

Since the braille display accommodates only one line at a time, out of the total text shown on the screen, operating keys have been included to move through the screen text without disturbing the contents of the screen. As a consequence, the braille display line need not necessarily coincide with the cursor line. However, the position of the cursor is important in many cases, since that is the place where changes in the text generally occur. By pressing the CURSOR-key, the braille display jumps to the line containing the cursor. Any text that is entered, appears immediately on the braille display.

As long as the CURSOR-key is kept depressed the cursor representation on the braille display cell is altered. If dot 8 represents the cursor, all dots will now go up to make it easier to find the cursor. If all 8 dots are used, by depressing the CURSOR-key, the cursor will disappear and the braille character will remain. There are five options for representing the cursor. See section 4.9.3d f3 f2 cursor representation on page 38, for more information on changing the cursor. Additionally, as the CURSOR-key is depressed the column position is shown in the braille status cells.

When you have defined a software cursor, each time you press the CURSOR-key the braille display jumps to the next occurrence on the screen of the software cursor.

The UP-key

The UP-key moves the braille display one line up on the screen. Arriving at the top line, the UP-key has no further effect. Two UP-keys have been provided to facilitate easy operation and for use with a split braille display. (With the ABT380, the 80 character display may be split so that one side displays one portion of the screen while the other side displays another. See section 4.9.3s f8 control of abt380 braille display part 1 or part 2 on page 47). By keeping the key depressed a rapid repeat function is invoked, i.e. after about half a second the braille display goes up automatically.

The DOWN-key

The DOWN-key advances the braille display by one line on the screen or one line further in the text. When the braille display is at the bottom line of the screen, the DOWN-key has no further effect. Two DOWN-keys of space bar width have been placed next to one another, because 'read the next line' is the most frequently used operation. The two keys are also used in the case of a "split" braille display. Like the UP-key, the DOWN-key incorporates a rapid repeat function. See also section 4.9.3r f7 redefining abt operating keys as cursor up/down on page 46 for other uses of the UP and DOWN-keys.

NOTE:

If the ABT does not display the complete screen line, the meaning of the UP and DOWN-keys on the ABT380 changes to function like the ABT320 and ABT340 keys (UP, LEFT, RIGHT and DOWN). This happens in the case of a split braille display on the ABT380 or with a screen size larger than 80 characters per line on any of the ABT's.

4.2 ABT320 and ABT340 operating keys

At the front edge of the case are located 7 operating keys. These keys can be operated with the thumbs, freeing the fingers to remain on the braille display while reading the text. These keys have no effect on the application cursor. Described below from left to right, the operating keys are:

PROG, HOME, CURSOR, UP, LEFT, RIGHT, DOWN

The operation of the first three keys, PROG, HOME, and CURSOR, are identical to the ABT380, reproduced below. The differences come in the UP, LEFT, RIGHT, and DOWN-keys.

The PROG-key

By pressing the PROG-key, the ABT-menu is invoked. There are essentially two avenues from which to choose.

- (1) The fourth operating key (reverse), and the fifth operating key (advance), may be used to examine the top-level menu and various types of status information. This includes the ABT software version number, a description of the operating keys, some screen attribute information, ABT reference points, a survey of the function keys, and much more.
- (2) Alternatively, the computer's function keys 1 through 10 may be pressed to examine or change a wealth of ABT system parameters. Refer to chapters 8 and 9 for more information on how to navigate through the various sub-menus and function toggles.

The HOME-key

The HOME-key, in combination with other keys, may be used to move the braille display to various key areas of the screen. When the HOME-key is pressed and released, the braille display shows the top left portion of the screen. In order to display the last line of the screen, press the HOME-key again. As the HOME-key can effectively carry out two different actions, a jump to the last screen line is accompanied by a low beep. To jump to a user-definable screen reference point, press and hold the HOME-key and press any of the computer's function keys one through ten. Reference points are set by positioning the braille display at the position to be stored, then pressing the PROG-key, then press and hold the HOME-key, followed by the function key that will be assigned to the reference point. See section 4.8 reference points or jump windows on page 31 for more information.

The CURSOR-key

Since the braille display accommodates only one line at a time, out of the total text shown on the screen, operating keys have been included to move through the screen text without disturbing the contents of the screen. As a consequence, the braille display line need not necessarily coincide with the cursor line. However, the position of the cursor is important in many cases, since that is the place where changes in the text generally occur. By pressing the CURSOR-key, the braille display jumps to the line containing the cursor. Any text that is entered, appears immediately on the braille display.

As long as the CURSOR-key is kept depressed the cursor representation on the braille display cell is altered. If dot 8 represents the cursor, all dots will now go up to make it easier to find the cursor. If all 8 dots are used, by depressing the CURSOR-key, the cursor will disappear and the braille character will remain. There are five options for representing the cursor. See chapters 8 and 9 (F3 F2 Cursor Representation), for more information on changing the cursor. Additionally, as the CURSOR-key is depressed the column position is shown in the braille status cells.

When you have defined a software cursor, each time you press the CURSOR-key the braille display jumps to the next occurrence on the screen of the software cursor.

The UP-key

The UP-key moves the braille display one line up on the screen directly above what is currently shown on the braille display. This means you could be reading on the right side of the screen and pushing the UP-key moves the display to the line directly above. With word wrap on, only whole words are shown and the UP-key moves the braille display to the first part of the line. Arriving at the top line the UP-key has no further effect. By keeping the key depressed a rapid repeat function is invoked, i.e. after about half a second the braille display goes up automatically.

The LEFT-key

By pressing the LEFT-key, the braille display moves backward over the previous part of the line. If word wrap is on, only full words are displayed and the braille display will move back through the text going to the right part of the previous line and then the left part until the top is reached. Like the UP-key, the LEFT-key incorporates a rapid repeat function.

The RIGHT-key

By pressing the RIGHT-key, the next part of the line is shown. If the end of the line is reached, the first part of the next line is shown. If word wrap is on, only whole words are shown and it may take repeated pushing of the key to move through the full line on the computer screen.

The DOWN-key

The DOWN-key moves down to the next line below, similar to the UP-key function.

4.3 Combining the PROG, HOME and CURSOR-keys with other keys

The PROG, HOME and CURSOR-keys can also be used in combination with other keys to perform additional ABT functions. When they are briefly pressed and then released the corresponding action is carried out (PROG starts the menu, HOME jumps to the beginning or end of the screen, CURSOR jumps to the cursor line, etc.). When a key is kept depressed for more than a second, it functions as a shift key, that is, to be used in combination with another key. When one of these keys is depressed for more than a second and then released without another key being pressed, nothing happens.

With the PROG, HOME and CURSOR-keys, additional information or functions may be obtained such as ASCII values, cursor position, selecting an alternate cursor type, and more. See section 4.9.2 operating key short-cuts on page 32.

4.4 The touch cursor

The touch cursor is situated immediately above (i.e., in back of) the braille display. Each braille cell is coupled with a raised dot or button. These buttons can be divided in two groups. In this manual they are referred to as listed below:

For the 80-cell Desktop models:

TCS 1-6	The touch cursor buttons above the status cells;
TC 1-80	The touch cursor buttons above the braille cells.

For the 20- and 40-cell models:

TCS 1-3	The touch cursor buttons above the status cells;
TC 1-40	The touch cursor buttons above the braille cells;

When you press one of the TC buttons immediately above the braille cells, the cursor moves to the position of the corresponding braille cell.

There are a number of ways in which the touch cursor is used. Word processing programs, for example, are made more efficient for the braille display user by using the touch cursor. Mistakes made when entering text can be corrected by positioning the cursor at the place where the error is found on the braille display. In systems without a touch cursor this had to be performed with the cursor control keys. First the actual cursor position had to be located, then the cursor had to be moved horizontally, vertically, or both. This is a very time consuming process. By pressing the TC button just above the appropriate braille cell, the cursor is immediately moved into position and the error can be corrected easily.

The touch cursor may also be used in other programs, such as spreadsheet and database programs.

At the DOS-level the touch cursor can be used as a backspace. If a command is incorrectly entered, merely pressing the dot above the first error removes that character and all subsequent characters in that line (only if the DOSKEY program is not activated). The command can then be entered correctly.

While the main function of the touch cursor is to move the cursor, there are a number of miscellaneous functions described in later sections.

4.4.1 Orientation marks on the touch cursor strip

For easy orientation with the ABT380, vertical marks have been placed on the touch cursor strip below the buttons and slightly above the braille cells at positions 1, 11, 21, 31, 41, 51, 61 and 71. Horizontal orientation marks have been placed at positions 6, 16, 26, 36, 46, 56, 66 and 76. There are no orientation marks on the ABT320 and ABT340 portable models.

4.5 The status cells

The ABT has a number of provisions to help keep track of the application cursor, the position of the braille display, attribute information, and more. The leftmost cells on the ABT, separated from the main braille display by a blank cell, provide this status information in a concise and easy-to-use way.

The ABT380 has five status cells, the last two of which are not in use with DOS-applications. They are planned for future enhancements to the ABT. Please check the README file on the program disk for the latest updated information. The other ABT3 models have three status cells. An empty braille cell has been placed after the first three status cells on the ABT340 portable and ABT320 and after the first five status cells on the ABT380.

4.5.1 Line position

Most commonly, the computer screen has 25 lines and 80 columns. The braille display always shows as much of one line as possible from the computer screen. The two leftmost braille cells are status cells that show the application cursor's line position in status cell one and the position of the braille display in status cell two. This is indicated by the letters a through y, corresponding to lines 1 through 25. That is, line number 1 is indicated by a letter "a", "p" represents line 16, and line 25 is represented as the letter "y", and so on.

Line numbers greater than 25 are also represented by the letters a through y, but also blink. The rate of blinking for line numbers 26 through 50 is one second on, one second off, for line numbers 51 through 75 three seconds on, one second off and for line numbers 76 through 100 seven seconds on, one second off.

If the braille display shows only part of a line, the addition of dot 7 is added to the second status cell to indicate segment two, dot 8 for segment three, and dots 7 and 8 for segments four and beyond. The number of segments depends on the size of the ABT braille display. That is, for an 80 column screen, a 40 cell braille display needs two segments to review a single line, whereas a 20 cell braille display requires four segments for an 80 character line.

To verify the number of the first column, the fifth line of the "status" sub-menu can be consulted. Alternatively, while pressing and holding the CURSOR-key, the column number of the application cursor is shown with a maximum of three numbers in the three status cells. This way, orientation and navigation about the computer screen is very natural.

To inspect the ASCII value for a particular character on the braille display, hold down the PROG-key and keep the TC button above the desired character depressed. The ASCII-value will be displayed in the first three status cells. Subsequent presses of the PROG-key will display the last queried ASCII value.

4.5.2 Screen attribute information (cell three)

Status cell three provides quick reference to screen attribute information. It is often necessary to know whether or not there is special text on the screen, such as bold or underlined material. The third status cell

reveals accumulative screen attributes or color combinations for the currently displayed line. For convenience, white text is ignored. Therefore, if the line consists only of white text on a black background, status cell three has all dots down. As colors are introduced for a particular line, the addition of each color is accumulatively indicated by the third status cell.

The top four dots indicate foreground colors:

dot 1: blue;
dot 2: green;
dot 4: red;
dot 5: enhanced.

The following color combinations are used to indicate additional foreground colors:

blue + green + red = black;
blue + green = light blue;
blue + red = purple;
green + red = yellow-brown;
no color = white.

Similarly, background colors are represented as:

dot 3: blue;
dot 7: green;
dot 6: red;
dot 8: enhanced.

The following color combinations are used to indicate additional background colors:

blue + green + red = white;
blue + green = light blue;
blue + red = purple;
green + red = yellow-brown;
no color = black.

For both foreground and background colors, the “enhanced” dots (5 and 8), are used to brighten colors, such as enhanced yellow-brown = yellow, and enhanced black = grey).

As an example, if a line consists of text with bright white on a blue background, as well as text that is shown as blue on a white background, then the pattern of dots in the third status cell will reflect this by the following conglomerate of raised dots: 1, 3, 5, 6, 7.

Be aware that the attribute status cell shows the presence of colors on a line, and not the location of the enhanced text. As a result, the attribute status cell has slightly different meaning than that of when Show Attributes (PROG F4), or HOME+CURSOR are used to examine screen attributes on the braille display. In particular, a white foreground is indicated by dots 1, 2 and 4.

Various methods may be used to make the reader aware of specific enhancements for a particular line. These include section 4.9.2k home+cursor: display attributes on page 34, section 4.9.3j f3 f8 define attributes with dot 8 on page 41 and section 4.9.3o f4 attribute information on page 45.

4.6 ABT320 and ABT340 user guidelines

The braille terminals with 20 or 40 reading cells operates in almost the same way as the 80-cell version with a few exceptions.

The definition of the operating keys is from left to right PROG, HOME, CURSOR, UP, LEFT, RIGHT, DOWN. The HOME-key moves to the first part of the first line. The UP and DOWN-keys move up and down, respectively. With word wrap on, they also move to the first part of the line. By pressing the RIGHT-key, the next part of the line is shown on the braille display. If the end of the line is reached, the first part of the next line is shown. The LEFT-key operates in the same way moving backwards.

If the braille display does not start at the first column of the screen the status cells blink at low speed.

Function PROG F2 switches between word wrap on and off (initially on). With word wrap on, the braille display will show as many full words as will fit on the braille display. By pressing the RIGHT-key of the braille display, the next part of the line is shown. If no more words are present on the line, the braille display jumps to the first part of the next line. The ABT320 with word wrap off, shows twenty cells at a time. The ABT340 shows either the first or the second half of the line. The ABT320 and ABT340 have no sub-menu with F2 and the function F8 has no effect, since the braille display cannot be divided in several parts. The actual state of word wrap on or off can be checked by pressing PROG, F1 and then F2.

The word wrap facility does not apply when reading the ABT-menu. This menu, which can be read after pressing the PROG-key, is always read in exact halves (with the ABT340) or twenty cells at a time (for the ABT320). The definition of the operating keys in the menu system is the same as for the full 80 character braille display. The definition is PROG, HOME, SELECT, UP, DOWN, DOWN, UP in the main menu.

NOTE:

With word wrap on, spaces at the end of the line are suppressed. If only one symbol is present at the end of the line, (Wordstar does this with a graphic symbol at the edge of the screen) this symbol will be placed at the last position of the braille display and the part of the line before the last symbol will be filled with spaces.

By positioning the display over one of the lines in the function Key Survey by means of the UP and DOWN-keys, the SELECT key, (the third ABT operating key from the left on the front panel), can be used to either toggle or select between options, or to select a submenu. The use of the SELECT key is an alternative for using the function keys. See also section 5.7.3 the external keypad on page 63 for the use of an optional keypad as an alternative for using the function keys on the computer keyboard.

4.7 The ABT-menu

The ABT-menu is the help menu built into the ALVA ABT3 series. Within this program you find help texts with brief descriptions about functions, parameter options, etcetera. Learning to use the ABT-menu means you will soon be familiar with all the functions of the ALVA ABT3 series. You can consult the ABT-menu at any given time, even from within applications.

Moving within the ABT-menu

The computer keyboard has a special group of keys with 10 or 12 function keys, numbered F1 through F10 or F12, respectively. Some programs use these keys to initiate special commands. The ABT uses the computer's function keys for changing the braille display system parameters. Normally, this is made possible by first pressing the PROG-key, thereafter pressing a function key will be interpreted as a braille display command. After having carried out the command, the function keys return to normal operation, i.e. remaining available for use with the word processor, database, or whatever application is in use. To get out of the ABT-menu, press the PROG-key. Alternatively, pressing one of the computer's character keys such as SPACEBAR, also exits the ABT-menu, but at the same time sends the keystroke to the application as well.

Within the ABT-menu, the operating keys for all ABT's have the following definitions from left to right:

PROG, HOME, SELECT, UP, DOWN, DOWN, UP

After pressing the PROG-key, the first line of the ABT-menu appears on the braille display and simultaneously on the upper line of the screen:

abt menu: search functions partition parameters blocks status help

NOTE:

The "partition" menu is only shown with 80-cell models

Within the ABT-menu the HOME key has no action on its own. This is to prevent the braille display from jumping to the first line of a submenu when the intention is to use the HOME key together with the CURSOR key in order to decrease a parameter.

The first line of the ABT-menu shows the names of a number of menus, which can be selected by pressing one of the TC buttons above the name of a menu. The DOWN-key cannot be used with the first line of the menu.

For shorter braille displays, repeated pushing of the LEFT and RIGHT-keys are necessary to read through a line of the ABT-menu. The menu can be read with the UP and DOWN operating keys (keys four and five), as described above.

4. 7.1 The search menu

By pressing one of the TC buttons above the word "search", you can search for the occurrence of a particular character or word. After you have typed the character or word you are looking for, press the <Enter>key. The braille display will then automatically jump to the line that contains the character or word you were looking for. The <Backspace> key can be used to erase letters from the search string. If you want to repeat the search, in order to find out if there are more occurrences of a particular character or word, press the PROG-key, one of the TC buttons above the word "search" and finally the <Enter> key.

4.7.2 The functions menu

By pressing one of the TC buttons above the word "functions", you can find out the current setting for the function keys, starting with F4 (F2 for the ABT320 and ABT340). Use the UP or DOWN-key to move through the menu. When you press the function key of which the current setting is shown on the braille display, you toggle that function. The corresponding beep sound is emitted by the computer (a high beep for "on" , a low beep for "off").

4.7.3 The partition menu

(80-cell models only)

By pressing one of the TC buttons above the word “partition-menu”, you can look at the different options for the F2 sub-menu. This function deals with dividing the braille display into two independent partitions. Use the UP or DOWN-key to move through the menu. When you press one of the function keys F2 to F10, the corresponding setting is activated. Check section ‘4.9.3b f2 braille display partitions or word wrap’ on page 37 and section ‘4.9.3s f8 control of abt380 braille display part 1 or part 2’ on page 47.

4.7.4 The parameters menu

By pressing one of the TC buttons above the word “sub-menu”, you can look at the different options for the F3 sub-menu. In this sub-menu you can change a wealth of system parameters. Use the UP or DOWN-key to move through the menu. When you press the function key of which the current setting is shown on the braille display, you toggle that function. The corresponding beep sound is emitted by the computer (a high beep for “on”, a low beep for “off”). Check the sections starting with ‘4.9.3c f3 f1 select a braille table’ on page 36 for a detailed description of all the options.

4.7.5 The blocks menu

When you press one of the TC buttons above the word “blocks”, a sub-menu is opened in which you can define blocks that monitor particular, user-defined areas of the screen. If a change occurs in that area, the braille display can perform particular actions. Check section ‘4.9.3n f3 f12 blocks function’ on page 42 for more details.

4.7.6 The status menu

By pressing one of the TC buttons above the word “sub-menu”, you can check a number of settings. Use the UP or DOWN-key to move through the menu.

The first line of the status menu shows the names of the operating keys of the ABT model you are working with.

The second line shows the name of the last program you were working with before you pressed the PROG-key:

```
program name (active) is [name] save delete
```

With the “save” option you can save up to ten different parameter settings for applications that you work with. “Delete” allows you to discard a particular parameter setting. See section 4.11 saving and loading braille parameter settings (abtset) on page 53 for more details on these options.

The third line shows the “attribute frequency”, or existence and number of occurrences of colors on the screen in ascending order. The following format is used:

```
attr. freq. #ATTR #ATTR #ATTR ...
```

where the number sign indicates the frequency of a color combination throughout the video display, and the ATTR represents the foreground and background color combination codes described in sections 4.5.2 screen attribute information (cell three) on page 25 and 4.9.3i f3 f7 selecting a software cursor on page 39.

On the videoscreen the “at” sign (@) is shown in the color of the attribute. This is particularly useful when trying to define a software cursor, since the lowest number of occurrences of a particular color combination

often deserves the highest attention, because it is likely that it is the currently selected menu item, default option, etc. Thus, when you are in doubt as to which color combination should be selected as the software cursor, it is often best to try each type in order from left to right, that is, from lowest to highest frequency. See the sections starting on page 36 on the 'CURSOR+FUNCTION KEY' shortcuts for selecting cursor types.

Note that if the optical indicator is selected with PROG F3 F6, the color combination count having the attribute of the optical indicator is increased by one in the attribute frequency count.

The fourth line of the status menu shows the line and column numbers of the application cursor and the cursor type. The various cursor types are:

a	automatic software cursor, special ascii or graphic character;
b	automatic software character, different background color;
f	automatic software cursor, different foreground color;
h	hardware cursor;
i	invisible hardware cursor;
s	software cursor non-automatic.

The fifth line shows the line and column position of the braille display and the current display partition: one or two. Line five also states the size of the braille display.

Line six shows the dimensions of the screen in terms of maximum lines and columns. The video mode and hexadecimal address of the video segment monitored by the ABT are also provided (this is mainly used for debugging purposes).

Line seven of the menu gives the status of the PC's keyboard functions which include: Insert, Caps Lock, Num Lock, Scroll Lock and Pause. Note that this insert status can differ from the insert status used by an application, specifically if the program keeps track of its own insert status starting from the beginning of the program. The Scroll Lock and Pause status are rarely used.

The eighth line shows the line and braille position numbers for the 10 screen reference points. The following format is used:

ref. points LINE#, POS#; LINE#, POS#; ...

where "LINE#" indicates the line number and "POS#" indicates the position of the first braille cell. In order from left to right, each pair of LINE# and POS# correspond to the reference points assigned to the function keys F1 through F10.

Finally, line nine reads: "End of status menu." Use the UP or DOWN-key to move through the menu.

Function key parameters and sub-menus

Pressing a function key from within the ABT-menu will invoke a sub-menu or toggle an ABT system parameter. Function keys F2 and F3 invoke a sub-menu. The sub-menus belonging to F2 and F3 have additional functions. The ABT 320 and ABT340 do not have a sub-menu for F2. The UP and DOWN-keys can be used to examine the sub-menus.

In order to change a system parameter, press the corresponding function key. The parameter will be changed, and a low or high beep will be sounded for confirmation. For example, to toggle between following the application cursor automatically or decoupling the braille display from the application cursor, press and release the PROG-key followed by a press of the computer's F5 key.

In order to invoke a sub-menu, press and release the computer's function keys F2 or F3. The first sub-menu item will be displayed. By pressing any of the function keys from within a sub-menu, the title of the menu item is shown along with the current status of the parameter setting. For example, by pressing PROG to invoke the ABT-menu, followed by F3, the first F3 sub-menu item (F1) is displayed:

F3 F1: 1 - Braille table, 1=german 2=usa 3= ger lc 4= usa lc

To select one of the other braille tables, use the sub-menu function key to switch between choices. In this case, the sub-menu function key is F1. Repeated presses of F1 will switch between tables one, two, three, and four, as shown by the number at the beginning of the line. To select a different F3 sub-menu item, press the desired function key.

As another example, to change the cursor representation, the F3 F2 sub-menu item needs to be altered. Pressing PROG, then F3 and then F2 displays the desired sub-menu. Appearing now will be six possible cursor representations with the present setting shown at the end of the line:

F3 F2: 2 - Braille cursor 1=dot 8 2=all 3=blink 4=7/8 5=blink 7/8 6=off

Pressing F2, the cursor representation cycles through the different settings. Press the PROG-key when the parameter is set correctly in order to leave the ABT-menu.

If there is no choice as in F3 F3, the value of the setting can be changed with the TC buttons above the <- and +> signs.

Alternatively, there is a second method for toggling or selecting ABT system parameters. This second method is useful if the PROG+FUNCTION KEY combinations do not respond properly, such as in certain terminal emulation environments. The procedure is described as follows:

The PROG-key must be pressed to invoke the ABT-menu. By positioning the display over one of the lines in the function key survey by means of the UP and DOWN-keys, the SELECT-key, (the third ABT operating key from the left on the front panel), can be used to either toggle or select between options, or to select a submenu. The use of the SELECT-key is an alternative for using the function keys. See also section 5.7.3 the external keypad on page 63 for carrying out function key commands with the optional keypad.

4.7.7 The Help menu

This final section of the ABT-menu gives information about various key combinations. This includes special operating key combinations, jumping to and setting reference points, etcetera. There are three categories:

short-keys speech-keys menu-operation

Press one of the TC buttons above the item of your choice and then use the DOWN-key to move briskly through the various menus.

4.8 Reference points or jump windows

Ten screen reference points are available for jumping to predefined screen lines or locations. This is accomplished by keeping the HOME-key depressed while pressing one of the ten function keys. The braille display will then jump to the corresponding line or location. The line numbers or locations can be defined by first moving the braille display to the line or location where the reference point is to be assigned. Second, press PROG (programming mode). Third, by keeping the HOME-key depressed, press the function key that is to be assigned to the new line or location. The screen line that is currently selected on the braille display becomes the new screen reference point.

NOTE:

For the ABT3 series, pressing one of the TCS buttons jumps to one of the first three or five reference points, depending on the number of status TC buttons. In the case of the ABT380 there are six status TC buttons. The portable models have three TCS buttons.

4.9 Overview of the function keys**4.9.1 Overview of the function keys by application**

Many of the ABT system parameters are best used in word processing, while other functions are more applicable to databases. The next survey is divided into the categories G General, W Word processing, and D Databases. For convenience, whenever a toggle function has been selected, a tone will be sounded: a high beep for switching on and a low beep for switching off. For example, F4 to F12 are toggles. The beep sounds can be turned off by placing the bell marker on column 0 (zero) with PROG F3 F3 and using the TC buttons above the <-signs.

NOTE:

A function labeled as a word processing function is not necessarily exclusive, and may be of value in other applications.

F1	G	Show status before and after pressing a function key;
F2	D	Divide the braille display into parts, or word wrap;
F3	G	Select a menu with sub-functions;
F3 F1	G	Select braille table, e.g. German or American;
F3 F2	G	Cursor representation;
F3 F3	W	Changing the bell position;
F3 F4	W	Left margin indicator (dots 4, 6, 7 and 8);
F3 F5	G	Select ASCII code for cursor;
F3 F6	G	Optical indication of braille display;
F3 F7	G	Selecting a software cursor, attributes, colors, ASCII;
F3 F8	G	Show dot 8 with a specified or all screen attributes;
F3 F9	G	Reserve the function keys exclusively for ABT use;
F3 F10	W	Define the operating speed of the touch cursor;
F3 F11	G	Set the ALVA Spacepad;
F3 F12	G	Block functions;
F4	G	Attribute information;
F5	G	Cursor tracking;
F6	D	Skip blank lines while reading;
F7	W	Redefining ABT operating keys as cursor up/down (cursor coupling);
F8	D	Control of ABT380 braille display part 1 or part 2;
F9	G	Select hardware or software cursor;
F10	G	Automatic on non-automatic cursor switching.
F11	W	Capitals indication;
F12	W	Grade 2 braille.

4.9.2 Operating key short-cuts

The PROG, HOME and CURSOR-keys can be used on their own. They may also be used in combination with other keys. On their own, they do not have any effect until they are released. We say that these keys are "shift keys", meaning that they have a similar function as those of the shift keys on a typewriter or computer keyboard. When they are briefly pressed and released, the expected action is carried out: (PROG invokes the ABT system menu, HOME jumps to the beginning or the end of the screen, and CURSOR jumps to the cursor line). However, when the key is pressed and held for at least a second, they function only as shift keys, that is to say, in combination with another key. When a shift key is released without

another key being pressed, nothing happens. This is to ensure that when, for instance, the PROG-key is pressed with the aim to use it in combination with another key, and this other key is not pressed, nothing will happen.

What follows is a detailed description of how these short cuts work. Some can be done by using function keys as well. However, these short cuts are typically faster than using the PROG and function keys. The UP, DOWN, DOWN and UP-keys of the 80-cell models as well as the UP, LEFT, RIGHT and DOWN-keys of the 40-cell models and the ABT320 are referred to here as KEY 4-7 respectively.

4.9.2a PROG + HOME: Capitals indication toggled on/off

When reading text with capitals, it may be useful to represent capitals as normal letters for faster reading. Letters can be represented in two ways: as capitals with dot 7 or as lower case letters without dot 7. This is called 8 dot braille or 6 dot braille respectively. Briefly pressing the PROG+HOME-keys together acts as a toggle to change representation. This does not change the braille table, nor does the mode remain active when the ABT is turned off.

4.9.2b PROG+CURSOR: Cursor tracking on/off (F5)

This turns on and off the braille display and application cursor coupling. It is often convenient if one needs to examine a part of the screen without interruption, even if there are screen updates. The braille display can be moved anywhere on the screen if cursor coupling is off, no matter to where the application cursor may jump. This is a PROG F5 shortcut.

4.9.2c PROG+TC: Display ASCII-values

By keeping the PROG-key depressed and pushing one of the TC buttons above a character, the corresponding ASCII value is shown in the status cells as a number between 0 and 255. This information is shown as long as the PROG-key is kept depressed. When, at a later point, the PROG-key is pressed and held again, the most recently selected ASCII value is shown. A survey of all possible ASCII values can be found in either PROG F3 F5 or the ABTTAB program. See the appropriate sections on page 39 and 56, respectively.

4.9.2d PROG+HOME+CURSOR: Enter the local mode menu

Simultaneously pressing the PROG, HOME and CURSOR-keys allows you to enter the local mode menu. For a detailed description of this menu please refer to the appropriate section starting on page 48.

4.9.2e PROG+HOME+TC: Define attribute with dot 8

Besides representing characters, punctuation marks, and figures according to the braille table used, screen attributes (such as inverse, underscored, blinking, and a different color) can be made visible on the braille display.

4.9.2f PROG+KEY 4: Line Up/Down as cursor Up/Down (F7)

This is essentially the reverse of PROG F5 or PROG+CURSOR, in that the ABT's operating keys can control the movement of the cursor. This is especially useful when reading through a document in a word processor since the screen will automatically be scrolled by the ABT.

4.9.2g PROG+KEY 5: Operate braille display partition 1 or 2 (F8)

Use this key to switch quickly between braille display partitions. This function only applies to the ABT380 and has no function in the ABT320 and ABT340.

4.9.2h PROG+KEY 6: Hardware or software cursor (F9)

Use this command to switch quickly between the hardware and defined software cursor.

4.9.2i PROG+KEY 7: Automatic or non-automatic cursor switching (F10)

Use this command to quickly select between hardware or software cursor "first".

4.9.2j PROG+FUNCTION KEY: Execute a function immediately

If function key F1 is not pressed after the ABT-menu is invoked, either the selected function is toggled and the status menu is automatically exited, or else a sub-menu is summoned and the first line or sub-menu item is displayed.

4.9.2k HOME+CURSOR: Display attributes while pressed

By keeping this key combination depressed, the color attributes for each cell of the braille display are shown. The braille cell where the cursor lies blinks as an additional indication. The top four dots of each cell represent the foreground colors and the bottom four dots represent the background colors. The following describes the attribute representations for a braille cell.

Foreground colors, top four dots:

dot 1 = blue;
dot 2 = green;
dot 4 = red;
dot 5 = enhanced.

The background colors are similarly represented:

Background colors, bottom four dots:

dot 3 = blue;
dot 7 = green;
dot 6 = red;
dot 8 = enhanced.

The following color combinations are used to obtain additional colors:

blue + green + red = white;
blue + green = light blue;
blue + red = purple;
green + red = yellow-brown;
no color = black.

The "enhanced" dots (5 and 8), are used to brighten colors, such as enhanced yellow-brown = yellow, and enhanced black = grey).

4.9.2l HOME+CURSOR+TC: Define software cursor (attribute)(F3 F7)

This key combination allows you to define a color software cursor. The foreground and background attributes for the software cursor are those associated with the braille cell when the corresponding TC button has been selected. This automatically toggles F9 to a software cursor. The attributes can be checked with the PROG F3 F7 sub-menu.

4.9.2m HOME+TC: Set left braille margin

With this option, it is possible to place the ABT on any starting position. By keeping the HOME-key depressed and pushing one of the TC buttons, the starting position of the braille display can be set. The braille display will start from that position. This simplifies reading columns. With the UP and DOWN-keys the screen can then be read from this position on the line. With this option word wrap will be switched off (switch on again with PROG F2). A vertical movement of the cursor can be followed in this way as well, provided the starting position lies before the cursor position.

The LEFT and RIGHT-keys disregard the set starting position and move in full steps according to the length of the braille display. The set starting position can be de-activated by placing the starting position at the beginning of the line.

4.9.2n HOME+KEY 4: De-activate all attributes of F3 F8

When you press this key combination all attributes that are set with dot 8 in the F3 F8 sub-menu will be de-activated.

4.9.2o HOME+KEY 5-7: Activate attributes 1-3 of F3 F8

When you press the HOME-key with one of these keys, the first three settings as defined in the F3 F8 sub-menu will be shown on the braille display with dot 8.

4.9.2p HOME + F1-F10: Jump to screen reference point 1-10

Use this command to jump to a user definable screen reference point. The status TC buttons jump to the first N reference points, where N is the number of available status TC buttons on the ABT model 3s. See section 4.8 reference points or jump windows on page 31 for setting a reference point.

4.9.2q CURSOR+TC: Define ASCII-software cursor

This combination allows you to define an ASCII-software cursor by selecting the TC button above the character shown on the braille display. In addition, this also automatically toggles F9 (cursor type) to a software cursor. The ASCII-character selected as a software cursor can be checked with PROG F3 F5.

4.9.2r CURSOR+KEY 4: Select hardware cursor

With this key combination the braille display is set to follow the hardware cursor over the screen.

4.9.2s CURSOR+KEY 5-7: Select software cursor 1-3 from F3 F7

On line 3 of the status sub-menu you can find how often a particular attribute (color combination) occurs on the screen (press the PROG-key, press one of the TC buttons above the word "status" and move two lines down). The first attribute has the lowest frequency, the last attribute on line 3 has the highest frequency. When you press CURSOR+KEY 5-7, any three of the attributes of the third line in the status sub-menu can

be selected as software cursor and will be followed by the braille display. Unlike the CURSOR+F2-F10 key combination, where there is a fixed order, you are free to choose any of the attributes you like. See also section 4.9.3i f3 f7 selecting a software cursor on page 39.

4.9.2t CURSOR+F1: Select hardware cursor

With this key combination the braille display is set to follow the hardware cursor over the screen.

4.9.2u CURSOR+F2-F10: Select software cursor from line 3 of the status menu

On the screen several cursors can exist. The hardware cursor is the most prevalent. Applications can also use different colors to attract attention or to indicate a selection bar.

It is not always clear which cursor type should be used. In the third line of the status sub-menu you can find the colors with their frequency (press the PROG-key, press one of the TC buttons above the word "status" and move two lines down). To define a software cursor having one of the color combinations shown, select it by keeping the CURSOR-key depressed and using one of the function keys. Function key F1 is reserved for the hardware cursor, F2 is used to select the first color combination or that which has the lowest frequency, etcetera. The number of color combinations can vary from application to application and even within applications from screen to screen. The ascending order represents the order for the most likely candidate.

4.9.3 Function key operations (in numerical order)

The following sections describe each function within the ABT-menu. We recommend that you familiarize yourself with the F1 function first, since it provides a sort of safety or help feature. For convenience, whenever a toggle function has been selected, a tone will be sounded: a high beep for switching on and a low beep for switching off. For example, F4 to F12 are toggles. The beep sounds can be turned off by placing the bell marker on column 0 (zero) with PROG F3 F3 and pressing the TC buttons above the <- signs.

The SELECT key can be used instead of the computer's function key to switch among menu options, such as selecting a braille table, or toggling between a hardware and software cursor. The TC buttons above the <- and +> signs are used for those items that require a specific value, such as F3 F3 (bell position).

See section 4.11 saving and loading braille parameter settings (abtset) on page 53, which describes storing and saving ABT system configuration files for use with specific applications.

4.9.3a F1 Show the status before and after pressing a function key

As you become more familiar with the ABT, you will inevitably memorize the function keys that are most relevant for common needs. In the beginning, PROG F1 helps the novice by displaying the status of a function, or a sub-menu title. Ordinarily, if F1 is not pressed after the ABT-menu is invoked, either the selected function is toggled and the ABT-menu is automatically exited, or else a sub-menu is summoned and the first line or sub-menu item is displayed. However, if F1 is used, then you can examine the meaning of a function and its current status, or else a sub-menu title is displayed. To change the status of a function or enter a sub-menu, a second press of the desired function key is required. Alternatively, another function key can be pressed and the status or title of that key is shown, without affecting the previous function or sub-menu item.

For example, the following two sequences of keystrokes are equivalent. Both toggle between a normal (hardware), and software cursor:

```
PROG F1 F9 PROG
PROG F9
```


Notice that when F1 is used, the PROG-key is necessary in order to leave the menu system. This allows you to change your mind, and to better explore the richness of the ABT-menu.

4.9.3b F2 Braille display partitions or word wrap

F2 Divide the braille display into parts (only for ABT380)

Items in a database are usually presented on the screen in a fixed pattern, e.g. a line may be reserved to represent a name. The next lines then may contain the address, the telephone number and so on. Usually you are tied to a previously chosen lay-out. For examining items that occur on different parts of the screen it is possible to divide the braille display into separate parts. Function key F2 invokes a sub-menu that shows all possible braille display divisions. Depending on the way in which the information is presented on the screen, one can choose from the following divisions:

F1	1 line, 80 characters;
F2	2 times 40 characters below one another;
F3	4 times 20 characters below one another;
F4	5 times 16 characters below one another;
F5	display part 1: 70 characters, part 2: 10 characters;
F6	display part 1: 60 characters, part 2: 20 characters;
F7	display part 1: 40 characters, part 2: 40 characters;
F8	display part 1: 2 times 30 characters below one another, part 2: 20 characters;
F9	display part 1: 2 times 20 characters below one another, part 2: 40 characters;
F10	display part 1: 3 times 20 characters below one another, part 2: 20 characters.

NOTE:

Wherever display parts 1 and 2 are mentioned, independent display parts are meant (see also F8).

F2 Word wrap for the ABT320 and ABT340

With the ABT320 and ABT340 F2 switches between word wrap "on" and "off". The default is "on".

With word wrap "on", the braille display will show as many complete words as will fit on the braille display. By pressing the RIGHT operating key, the next part of the line is shown. If no more words are present on the line, the braille display will move to the first part of the next line. Also, spaces at the end of the line are suppressed. If only one symbol is present at the end of the line (as in the case of Wordstar), this symbol will be placed at the last position of the braille display and the part of the line before the last symbol will be filled with spaces.

If word wrap is "off", each press of the LEFT and RIGHT operating keys moves the display by 20 or 40 characters, depending on the size of the ABT.

The ABT320 and ABT340 have no F2 sub-menu. Consequently, function F8 has no effect on the 20 or 40 models, since the braille display cannot be divided into more than one part. Finally, the word wrap facility does not work within the ABT-menu.

F3 Select braille table, cursor representation and others

In the ABT-menu, F3 invokes a sub-menu with an entire set of new system parameters. The F3 F1 sub-menu is displayed first. Use the computer's function keys to examine or change the other items. Alternatively, the REVERSE and ADVANCE operating keys may be used to browse through the sub-menu. To change the status of a function, use the sub-menu function key. That is, that key which was last pressed and appears second on the left hand side of the current line as a reminder. Alternatively, the SELECT key, (the third operating key), may be used to toggle or switch between items. Finally, the DECREASE PARAMETER and INCREASE PARAMETER keys, (keys six and seven), are used to change the value of an enumerated function, such as bell position (F3 F3).

4.9.3c F3 F1 Select a braille table

The ABT provides four directly interchangeable braille tables. Two braille tables follow either the German or the American standard. Two extra braille tables differ from the other two by only the omission of dot 7 in the representation of capital letters. This facilitates the reading of texts that consist mainly of capital letters. The most important difference between the German and American standard is in the representation of numbers. The German system uses dot 6 together with the letters a through i to denote the numerals one through nine. The number zero is represented by dots 3, 4 and 6. The American system uses characters which are juxtaposed by one dot downwards, similar to the Nemeth braille convention but without a number sign. The F3 F1 function is displayed as follows:

F3 F1: 1 - braille table, 1=german 2=usa 3=ger lc 4=usa lc

The "1" after the colon refers to the current setting for this parameter and could be another number if your setting is different. Options 1 and 2 (German and USA) are tables that distinguish between lower and upper case letters. Options 3 and 4 do not, and are thus lower case "lc", tables.

Section 4.12 changing and checking a braille table (abttab) on page 56 describes the procedure for making changes within a braille table. See also the GRADE2.WP5 or GRADE2.ASC file on the program disk for more information about contracted braille.

4.9.3d F3 F2 Cursor representation

The computer cursor indicates the position on the screen where characters can be entered and is usually represented by a blinking line or block. The cursor control keys move the cursor over the screen. In some instances the cursor may overlay an existing braille character.

Five different ways of showing the cursor on the braille display are available.

- (1) The cursor can be indicated by raising dot 8. This allows a braille sign to be read even at the cursor position. However, the cursor may be difficult to find.
- (2) All 8 dots may be used to indicate the cursor, making it easier to locate. The disadvantage is that the character "under" the cursor cannot be read unless the CURSOR-key is depressed.
- (3) The braille cells move up and down or blink. That is, the dots that make up the character remain up, while the remaining dots in the cell move up and down. In this way, the character can be examined under the "blinking" cursor.
- (4) The cursor is indicated by raising dots 7 and 8. This is probably the most common since most of the character can be examined and the cursor located.
- (5) The cursor is represented by dots 7 and 8 blinking.
- (6) The cursor may be turned off.

When using a word processor for reading only text, option 1 or 4 is generally recommended, since the cursor can be located and the character "under" the cursor can be read.

Selecting a particular type of cursor representation is done by pressing the F2 key. Press this key as often as is required to select the cursor representation of your choice.

4.9.3e F3 F3 Changing the bell position

While entering text, you do not have to concern yourself with the line length. A word processor program automatically shifts words exceeding the margin to the next line. When long words are transferred to the next line, large open spaces may occur. This is avoided by positioning a bell marker 6 or 7 spaces before the right margin, much the same as a typewriter carriage bell. When the cursor crosses this point, a bell

rings from the computer's speaker, and the word can then be divided early enough, thereby retaining adequately filled lines.

The bell marker position can be chosen by pressing the TC buttons above the "<->" or "+>" signs. Keeping either TC button depressed activates a repeat function.

By setting this parameter to zero, no bell tone is sounded, and the ABT affirmation tones for function toggles are disabled. Function toggles are those selected with F4 through F11.

4.9.3f F3 F4 Margin indicator

Before printing a piece of text, a final layout check may be needed. Changes may have occurred when words have been inserted or deleted. The lines should neatly fit within the margins, and tabs should be correctly positioned. To facilitate layout control, an adjustable margin indicator is available, so the correct length of a margin or a tab position can be checked easily.

The margin indicator position can be chosen by pressing the TC buttons above the "<->" or "+>" signs. Keeping either TC button depressed activates a repeat function.

4.9.3g F3 F5 Select ASCII value for software cursor

Besides the computer cursor or hardware cursor, more and more programs are using other software cursors. With this function an ASCII value between 0 and 255 can be chosen as the software cursor for which the ABT will track. With the TC buttons above the "<->" or "+>" signs the code of your choice can be selected.

The character itself is shown on the menu line before the ASCII number (space and the \$ [dollar] sign are not shown). A quick method of selecting a particular ASCII-value is the CURSOR+TC key combination (see section 4.9.2q cursor+tc: define ascii-software cursor on page 35).

4.9.3h F3 F6 Optical indication of braille display

On the computer screen, an inverse video block may be displayed that shows which text line is displayed on the braille display. The column, in which this inverse video block is shown can be selected in the first or the last screen column. This optical information is useful for the interaction between a blind and sighted user. The optical indicator may also be turned off.

Selecting one of the options is done by pressing the F6 key. Press this key as often as is required to select the option of your choice. You may also use the SELECT key to do this.

4.9.3i F3 F7 Selecting a software cursor

This menu allows you to more specifically define which software cursor the ABT will track if F9 is set to "software cursor (first)". Often, it is easier to select the software cursor by means of the HOME+CURSOR+TC method described on page 35 and then, if desired, you can restrict or further specify particular attributes by means of the F3 F7 sub-menu.

After pressing F3 F7 the following menu appears:

F3 F7: soft cursor (fg: bl gr rd hi) (bg: bl gr rd hi) (ascii)

Each of the three categories - foreground, background, and ASCII - are enclosed in parentheses as shown above. Both foreground and background also have the option to be highlighted or not. You can activate or suppress specific foreground and background attributes. Alternatively, an ASCII character may be selected as the cursor for which to track. By pressing the TC button above one of the menu items, the item is either active, with dots 7 and 8 raised, or suppressed, with dots 7 and 8 down. The items in the menu have the following meaning:

“fg” = foreground color. The foreground refers to the color of the characters on the display. When not specified, suppressed, any foreground color is allowed. Hence, activating colors while “fg” is suppressed, allows all colors but the ones selected. Activating a particular color or color combination when “fg” is active, selects that color or color combination.

“bg” = background color. The background is the color on which the foreground character is superimposed. The same rules apply for selecting particular attributes as for the foreground (“fg”), described above.

Highlighted background may also indicate blinking. While some of the first PC video cards used only blinking, more recent types can be set to show a highlighted background. (See below)

“bl gr rd” = the colors blue, green, and red, respectively. All other colors are formed by combining these three colors in combination with highlight (“h”). The following combinations occur:

blue + green + red = white;
 blue + green = light blue;
 blue + red = purple;
 green + red = yellow-brown;
 no color = black.

With highlighted active, colors are brighter (for instance highlighted yellow-brown = yellow and highlighted black = grey).

“hi” = highlight. In addition to specifying brightness, the “hi” item is also used in combination with some colors to obtain more colors. When highlighted is switched off, highlighted may or may not occur. When, for instance, “fg” is switched off and “hi” is switched on, any color with highlight on is allowed.

“ascii” = ASCII character. A specific ASCII character can be selected as the software cursor. The value of the ASCII character to be followed is set with PROG F3 F5.

Note: With a monochrome video card, we have the following options: Normal (white on black) or reverse (black on white), highlight, underscore, and blinking. Underscore is indicated with the same attribute as foreground color blue. Blinking is indicated with the same attribute as background highlight.

The use of a monochrome video card should not be confused with that of a monochrome VGA monitor and a high resolution VGA card. In the case of a monochrome VGA setup, shades of grey, rather than colors are represented.

When searching for a software cursor with F10 set for non-automatic, only the first occurrence of the attribute on the line is found. With the CURSOR-key the braille display can jump to the next occurrence of the same attribute.

The following function key short cuts may also be used:

CURSOR+KEY 4	non-automatic hardware cursor;
CURSOR+KEY 5	non-automatic software cursor 1;
CURSOR+KEY 6	non-automatic software cursor 2;
CURSOR+KEY 7	non-automatic software cursor 3.

Note:

Whenever a change is made PROG F10 will be set to non-automatic and PROG F9 will be set to hardware cursor, software cursor respectively.

If one of the colors blue, green or red is changed with PROG F3 F7, the “foreground” or “background” parameters will be activated automatically.

Line 3 of the status sub-menu also states which software cursor is currently selected, together with the foreground and background color combination (in words). The "highlighted" option is treated separately. If no foreground or background color is selected, the color is listed as "any". An example:

cursor: line xx, pos xx, cursor type h ; soft c. 1 is any on any

4.9.3j F3 F8 Define attributes with dot 8

Besides representing characters, punctuation marks, and figures according to the braille table used, screen attributes (such as inverse, underscored, blinking or a different color) can be made visible on the braille display. With this function you can choose between six pre-defined options or set your own. When you press PROG, followed by F3 F8, the braille display shows the following line:

F3 F8: 1 - Dot 8 attr. active (fg: n: bl gr rd hi) (bg: n: bl gr rd hi)

You can activate a particular option by pressing one of the TC buttons above the word "active". This word is then shown in inverse video and in capitals as is the case with all active attributes. When the letter "n" is activated, this means the color or colors you have selected should not occur on the screen. By changing the blue, green or red color or the n: parameter, the "active", "fg" and "bg" parameters are switched on automatically. See also section 4.9.3o f4 attribute information on page 45.

Use the SELECT or the F8 key to cycle through the choices.

4.9.3k F3 F9 Reserve the function keys for exclusive ABT use

There are four ways to reserve the computer's function keys for exclusive ABT use:

- (1) Option 1 is the default option. The PROG-key must be pressed in order to invoke the ABT system menu.
- (2) For some programs, the computer's function keys may not be required, such as at a DOS-prompt. In that case, the function keys may be reserved so that they invoke the ABT-menu items without the need to use the PROG-key.
- (3) The third option bypasses the HOME-key, allowing the braille display to jump to a screen reference point when a function key is pressed. When defining a screen reference point, use a HOME + Function key combination.
- (4) A fourth option allows the optional external keypad to jump to reference points, thus eliminating the need for using the HOME-key before jumping. PROG must be used before pressing a keypad key in order to invoke an ABT-menu function.

Selecting one of the four options is done by either using the SELECT key or by pressing the F9 key. Press this key as often as is required to select the option of your choice, as indicated by the status portion at the end of the menu item line.

4.9.3l F3 F10 Define the operating speed of the touch cursor

The touch cursor generates cursor commands (arrow right, left, up, and down). Some computer programs cannot process the speed in which these commands are generated. In this case the speed can be adjusted to 1=fast, 2=normal, 3=slow. Option 4 turns off the touch cursor entirely. Choosing option 5=char, the touch cursor generates ASCII-codes from 128 to 255. These codes can be used in a special application. With options 6 and 7=extrn (external), the touch cursor commands are routed to the computer's keyboard input directly. This facility may be needed in the case of terminal emulation programs. For this purpose the keyboard should be connected to the ABT and a specially-provided cable should be used to connect the ABT to the keyboard input of the computer. In addition, an external keypad may be used as an alternative for using PROG plus a function key.

Use the SELECT key or the F10 key in order to select the desired option.

4.9.3m F3 F11 Connect the ALVA Spacepad

F3 F11: 1 - Spacepad 1=off 2=on

With this key combination you can connect the optional Spacepad accessory. Information is sent, irrespective of whether a Spacepad is connected to the ABT, so this function should be set to off, when no Spacepad is connected.

We recommend that the Spacepad is connected to serial port 1(ser1) of the ABT.

4.9.3n F3 F12 Blocks function

Using blocks

Blocks are user-definable areas on the screen. If a change occurs within an area, the braille display can react. When a text appears at a particular place on the screen or when it disappears, the braille display may carry out a number of actions.

In the menu the CURSOR-key is used to increase the value of a parameter. When you keep the HOME-key depressed and then press the CURSOR-key, you can decrease the value of a parameter.

When several parameters occur on one line, their values can be changed by pressing the TC buttons above the <- and +> symbols.

Changeable parameters are indicated with an "x" in this text.

You can scroll through the menu by using the UP and DOWN-keys.

F3 F12: x - Blocks (all) 1=off 2=on (press down for individual block)

The CURSOR-key can be used to switch all blocks on or off. This means that all blocks that are active will be monitored when F3 F12 is on.

When you make a mistake while changing block parameters and the result is that a particular action is continually carried out, switch off F3 F12 first and then de-activate the individual block that is causing problems. Finally, switch F3 F12 back on.

We recommend that you de-activate a block before you start changing its parameters.

Block: x - press down key for parameters or cursor key for next block

When you press the DOWN-key a line appears with a block number. With the CURSOR-key you can move to the next block. When you keep the HOME-key depressed and then press the CURSOR-key you can select the previous block.

When you have selected a particular block, you can use the DOWN-key to examine the block parameters.

Block 1 Active: x - 1=off 2=on

With option 2 (on) the actions described in the list below are carried out as soon as the text (search string) appears in the block or disappears from the block, depending on the action type.

This only happens when F3 F12 blocks is switched on as well.

Block 1 search string <text> (select edit)

When a search string has already been entered, this string is shown at the position of <text>. The search string may also contain non-alphanumeric characters.

Selecting a search string

A search string can be selected on the screen by using the TC buttons above that string. Choose the "select" option by pressing one of the TC buttons above it. The ABT program leaves the menu and returns to the contents of the screen.

In status cell 3 a “b” is blinking, indicating that you are in the process of selecting a search string. In addition, dots 7 and 8 will blink at the position of the search string, when a search string is already defined. The search string can be extended by pressing the TC button before or after the blinking section. When you press one of the TC buttons above the search string, the search string is made smaller. It now begins or ends at the position of the deleted character, depending on whether the beginning or the end of the original search string was nearer. The search string can thus be shortened in a number of steps.

It is also possible to select a different line on which the search string should occur by pressing the UP or DOWN-key. Dots 7 and 8 will stop blinking then.

When you press a TC button on the new line, both the beginning and the end are placed at the corresponding position. The string starts with one character.

When you press the HOME-key you jump to the first or last screen line.

When you press the CURSOR-key the search string is stored in memory and the braille display jumps back to the menu line from which you started the selection.

With the PROG-key you break off the definition and leave the menu altogether. You can re-enter by pressing the PROG-key, selecting F3 F12, etcetera.

Entering a search string

When you choose the “edit” option, the search string can be entered on the computer keyboard. By pressing the <Enter>key the search string is stored into memory.

Block 1 String line: <-x+> column: <-x+> range: <- x +> of search area

The position of the search string (block) on the screen can be changed here or can be set by changing the value of the “line” and “column” parameters. This is done by pressing the TC buttons above the <- and +> symbols.

With the “range” parameter you can determine whether the search string should start exactly at the given position, or within a given number of positions. The search string should always be on one and the same line.

Block 1 Step x: Action x = <explanation>

In the remaining 5 lines (steps 1 to 5) the actions that are carried out are mentioned.

Action 0 (end) indicates the last action. The remaining actions are not carried out.

You can select a particular type of action by pressing either the CURSOR-key or by keeping the HOME-key depressed and then pressing the CURSOR-key.

End of block 1

After step 5 comes an extra line: End of block 1

At this point you can still use the UP-key to read backwards through the parameters of block 1.

When you press the DOWN-key, the program jumps back to the line “block x”, where the new block number is selected (in this case block 2). You can then view the parameter settings for block 2, etcetera.

When you are on the line that says “Block x”, you can keep the HOME-key depressed and then press the CURSOR-key to move to the previous block or even the UP-key to return to the first line of the menu F3 F12 Blocks to switch all blocks on or off.

You can leave the menu by pressing the PROG-key.

Currently defined actions:

The actions that are carried out are currently defined as follows:

0 end

1 update search string and beep after a change

This action is called by actions 2 and 3 (see below) and is used to store the new contents of the search area as search string, so that this new string can be used for subsequent checks.

2 update search string and display after a change

This action works in the same way as action 1, but in addition moves the braille display to the line containing the search string (monitor function). If, however, only blanks and/or graphical symbols (with ASCII values equal to or greater than 160) occur, the braille display is not moved.

3 update search string and speak after a change

This action works in the same way as action 1, but in addition speaks the new search string (monitor function).

4 select hardware cursor when search string not found

As soon as the search string disappears, the hardware cursor is selected if that had not yet been the case. You can still manually switch over to the software cursor when the search string is absent.

This action is best used in combination with action 5, listed below.

5 select software cursor 1 when search string found

As soon as the search string appears, software cursor 1 is selected. It takes on the attributes of the first character of the search string and is searched for on the first line following the search string.

6 not defined

7 beep when 4 characters after search string changed

When the search string is found, the first four characters after the search string are compared with the previous contents. When a change occurs, the new contents are saved and a beep is produced.

Applications:

The actions listed above are included in the default program settings as an example. They are deactivated when you start the program. They may be used in combination with WordPerfect.

Block 1 monitors the area covering the bottom screen line, which contains the page number (search string "pg", action 7). When the page number changes, a beep sound is emitted. The "range" parameter is set to 30, because the letters "pg" can move according to the number of digits that follow.

Block 2 does the same for line 13, which is the status line when the Reveal Codes screen or the spelling checker is used.

Block 3 monitors the Tab Ruler to see if the Reveal Codes screen or the spelling checker becomes active. When that is the case, a software cursor is selected (action 5). When the Tab Ruler disappears again the hardware cursor is once more selected (action 4).

Note:

This does not function exactly as it should when the WordPerfect scroll menu is called with the <Alt> key, because this menu may overlap the Tab Ruler. A solution to this problem would be to add another block that checks whether the scroll menu appears.

Also, when the first tab on the Tab Ruler is not at the default position, the function does not automatically work either. In that case the search string needs to be re-selected.

Block 4 monitors the first 40 characters on the bottom screen line and jumps to that line each time it changes (action 2).

When, for instance, you press the <Insert> key, the text "Typeover" appears on the WordPerfect status line.

GENERAL NOTE:

The number of actions that can be used within the program will be extended or adjusted in the future.

4.9.3o F4 Attribute information

Normally, the screen displays letters, punctuation marks, numbers and extended ASCII characters. By default, the extended ASCII characters 128-255 are represented by dots 6 and 7. If these symbols need to be distinguished from one another, the braille table can be modified by means of the ABTTAB command. (See section 4.12 changing and checking a braille table (abttab) on page 56). In addition, the screen colors may be displayed by toggling F4 to show attributes. This may be useful for orientation to a new screen layout when color software cursors are used. (See also section 4.9.2k home+cursor: display attributes while pressed on page 34 for briefly checking the color attributes)

The top four dots in each cell represent the foreground colors and the bottom four dots represent the background colors. The following describes the color representation in a braille cell.

Foreground colors, top four dots:

dot 1 = blue;
dot 2 = green;
dot 4 = red;
dot 5 = enhanced.

For the background colors the same applies with dots 3, 7, 6 and 8:

dot 3 = blue;
dot 7 = green;
dot 6 = red;
dot 8 = enhanced.

The following color combinations yield more attributes:

blue + green + red = white;
blue + green = light blue;
blue + red = purple;
green + red = yellow-brown;
no color = black.

With "enhanced" active, colors are brighter (for instance enhanced yellow-brown = yellow and enhanced black = grey).

4.9.3p F5 Cursor tracking

This function allows the braille display to automatically follow the cursor. With this function off, moving the cursor has no effect on the braille display's position. That is, the application may write to the screen, thus advancing or moving the cursor, and you may continue to examine the screen without interruption.

4.9.3q F6 Skip empty lines

It is often the case that knowing about blank lines is irrelevant. When, for example, one is reading ordinary text, or browsing through pull-down and pop-up menus, knowing about the blank lines and spaces is of little significance when speed is desired. Therefore, working speed will be increased by skipping blank lines

when using the ABT operating keys. However, when inspecting the screen by moving the cursor, such as with the computer's arrow keys, blank lines will, of course, be shown. Blank lines will not be skipped if the UP and DOWN-keys are defined as cursor up/down keys (see F7 below). When skipping blank lines a beep sound can be heard.

Use the SELECT or the F6 key to cycle through the choices.

4.9.3r F7 Redefining ABT operating keys as cursor up/down (Cursor coupling)

Only part of a text, usually 24 or 25 lines at maximum, is displayed on the screen at one time. To scroll the screen or show more text, a command must be entered on the computer, e.g. telling it to move the cursor one line down, jump a number of lines forward or backward, etc.

An innovation of the ABT enables a continuous reading process in which keyboard actions are avoided altogether. Normally, when arriving at the bottom line of text, such as in a word processor, a command has to be entered in order to display more text. Now, by defining the UP-key as a cursor up key and the DOWN-key as a cursor down key, reading without interruption can occur. This essentially couples the application cursor and ABT operating keys together.

For inspecting lines outside the text window, e.g. status lines, the HOME-key can be used to jump to the top or bottom line. This action temporarily decouples the cursor control from the UP- and DOWN-keys, enabling the whole screen to be inspected independently from the text window. The lines that indicate page transitions - lines normally skipped by the cursor - can also be checked in this way. The cursor remains at the same position and pressing the CURSOR-key (jump to the cursor) will automatically restore the cursor coupling. Similarly, reference points may be jumped to, but decoupling is not in effect.

NOTE:

After leaving a program, and returning to DOS, the cursor coupling is still functioning. In order to read the lines above and below the cursor line in the normal way, the cursor must be decoupled by using function PROG F7.

4.9.3s F8 Control of ABT380 braille display part 1 or part 2

This function only applies to the ABT380 and has no function in the ABT320 and ABT340.

By dividing the braille display into two parts (see F2) it becomes necessary to move the two parts independently. By using this function either part 1 or part 2 can be moved over the screen. A few functions, such as the bell, the touch cursor and the automatic following of the cursor position are only operative within the braille display part 1.

4.9.3t F9 Select hardware or software cursor

F9 is a toggle for following either a hardware cursor or a software cursor.

The hardware cursor is that cursor which is generated by the video card. It is usually represented on the screen by means of a small, fast blinking line or block.

Software cursors are usually generated by application programs. A software cursor is, in general, represented by a contrast in color with respect to the characters around it, or even a specific ASCII character. Various color combinations of foreground or background colors are often used to attract a sighted user to a certain area of the screen, such as with inverse video or a sharp color contrast. If the ABT doesn't seem to be displaying the correct information, it is likely that the ABT should track some sort of software cursor.

The type of software cursor to be followed is set by using F3 F7 Consult the F10 description that follows to learn how the F9 function affects the automatic cursor selection.

Choosing what kind of software cursor to follow will depend on the application and what information is important for you. In some cases the hardware cursor follows a software cursor, but the hardware cursor is invisible on the screen. In those cases it is often easier to follow the hardware cursor because the two cursors are locked together. When they are not locked together you have the option of following the hardware cursor or the software cursor by setting F9 appropriately. The HOME+CURSOR or PROG F4 function are often very useful for locating the software cursor.

For convenience, the PROG+KEY 6 shortcut key combination is available to more easily switch between the hardware and a software cursor.

4.9.3u F10 Automatic cursor switching

This toggle instructs the ABT whether or not to switch to the alternative cursor if the primary cursor type is not to be found on the screen. The primary cursor is that cursor which is currently selected with the F9 function.

By setting F10 to non-automatic, the ABT will only follow the cursor type selected with F9.

If the automatic cursor option is selected, then the ABT uses a more sophisticated scheme to decide what the braille display shows.

This is often very useful for programs that incorporate menu highlight bars and normal cursors. You may not even notice that a different cursor is being followed. See section 4.9.3i f3 f7 selecting a software cursor on page 39 and the previous section.

When the automatic cursor option is selected, and the F9 function is set to be a normal (hardware) cursor, the ABT will first search for a change in position of the hardware cursor. A change in position of the normal

or hardware cursor instructs the ABT to track this cursor type. If there is no change in position of this cursor and there are no changes in color, but the content of the line that contains the cursor has changed, the hardware cursor remains selected. If no change in position is detected, and there is a change in color on the screen, the ABT automatically switches and tracks the defined software cursor.

If F9 is set to follow the software cursor (with the automatic cursor option selected), the algorithm described above is reversed. The ABT checks for a change in color first and continues to follow the software cursor if there is no change in color. Otherwise, the opposite of the above description is followed in order that the normal or hardware cursor is being tracked if no software cursor is detected.

Sometimes the appropriate cursor can be found by moving the cursor back and forth, while monitoring other parts of the screen for dialogue or help boxes that reflect, by context, where the software cursor is. For instance, when moving between items in a menu bar, there is often a dialogue box near the bottom of the screen that gives a brief description of what is to be found in the corresponding pull-down menu. Thus, the content of the box often gives clues to which menu item is highlighted.

When there is more than one cursor at the same time, it may be useful to change the preference for following either the hardware cursor or the software cursor first. For instance, with spell check in WordPerfect, the hardware cursor is parked on line 25, and it is then desirable to follow a software cursor, since a software cursor is used to indicate the misspelt word. Subsequently, when in normal edit mode, there is no software cursor to be found, and thus the hardware cursor is used. See section 4.9.3i f3 f7 selecting a software cursor on page 39.

For convenience, the PROG+KEY 7 shortcut key combination is available for changing between automatic and non-automatic cursor switching.

4.9.3v F11 Capitals indication

When reading text with capitals, it may be useful to represent capitals as normal letters for faster reading. Letters can be represented in two ways: as capitals with dot 7 or as lower case letters without dot 7. This is called 8 dot or 6 dot braille respectively. Pressing the F11 key acts as a toggle to change representation. This does not change the braille table, nor does the mode remain active when the ABT is turned off.

For convenience, a special shortcut key combination has been provided for switching between 6 and 8-dot braille: PROG+HOME.

4.9.3w F12 Grade two braille

With PROG F12 you can choose between Grade 2 braille or standard braille.

This option only applies when you work with a version of the ABT software especially designed for working with Grade 2 braille.

4.10 Host mode and local mode special functions

The internal software on board the ABT is known as firmware.

The ABT has two modes for changing parameters. "Local mode" allows you to change hard- or firmware parameters, such as serial ports or speaker volume. Host mode allows you to change the way the ABT behaves for a particular software application, such as cursor tracking off/on and word wrap.

The ABT is in "host mode" when the ABT is turned on and the ABT software is loaded into the computer's memory.

NOTE:

When the ABT program is not active or the ABT is not connected to the computer, the ABT-type, serial number of the ABT and the firmware date, (shown as day, month, year), appear on the braille display. This is useful

information when placing a service call. Please have this information ready when calling us.

We occasionally have updates for the firmware. Refer to section 5.1 abt software and firmware updates on page 59 for more details.

To invoke the firmware program or “local mode” menu, press keys 1, 2, and 3 simultaneously. These keys are PROG, HOME, and CURSOR. (However, for this section the keys are numbered since their function has a different application in “local mode”. PROG is now called key 1, HOME is key 2 and so on. Key 7 is the second UP-key on the ABT380 and the DOWN-key on the ABT340).

A long beep is sounded when the ABT enters the “local mode” menu.

On the braille display the following menu appears: “rec play stat setup”. By pressing one of the TC buttons above a word, the corresponding sub-menu is activated. Key 1 is used to exit the “local mode”. The “local mode” menu may be entered at any time, including when the ABT software is loaded.

4.10.1 Recording and play back (rec, play)

The ABT3 models allow you to record and play back sounds easily. This can be used to record notes, messages and other information you wish to record. To make a recording, when the display is in “local mode”, one of the TC buttons above the word “rec” must be kept depressed. After three beeps the sound recording starts. Begin speaking after the three beeps. When the TC button is released, the recording stops. A sound is produced to indicate the end of the recording. The sound signal may also be heard during the recording process to indicate that the memory is full and the recording is stopped at that moment. Currently, 14 seconds of recording time are available. By pushing one of the TC buttons above the word “play”, the recording can be played back. When the ABT is turned off the recording is erased.

NOTE:

Messages will only be erased when the ABT is switched off and the power adapter is not connected.

4.10.2 Extra status information about the braille display (stat)

The “stat” sub-menu has four parameters “com bat dat brtb”

com now xx s2=yyy s1=yyy

where “xx” is the communication channel with “p” (parallel), “s1” or “s2” as possible values. “yyy” indicates which device is connected to the serial port (s). Examples are “pc”, “kpd” (for keypad), “spc” (for spacepad), “bsc” (for brailscope) and “bsp” (for braille ‘n speak). The last two are non-alva devices.

bat vbat=x.xx vnet=yy.yy

where “x.xx” represents the battery voltage (e.g. 6.93 Volts) and “yy.yy” the voltage passed on by the power adapter (e.g. 10.01 Volts). The ABT380 has no batteries, so the value of “x.xx” should be ignored with terminals of this type.

dat sn=xxxxxx fd=yyyyyy

where “xxxxxx” represents the serial number of that particular ABT e.g. 340255, and “yyyyyy” represents the date of the firmware inside the ABT, e.g. 010197 (for 1 January 1997).

brtb braille=xxxxxx

where “xxxxxx” represents the original name of the braille table in use within the ABT program, e.g. “usa”.

4.10.3 Setup parameters (setup)

NOTE:

The setup parameters remain stored in memory, even when the ABT is switched off, until they are changed again.

In “local mode“, pressing one of the TC buttons above the word “setup” brings up the setup main menu. The status cells always show the name of the present sub-menu, the remaining braille cells show the names of the sub-menus. A selection can be made by pushing one of the TC buttons above the sub-menu options.

To return to “local mode“, press key 1. Pressing key 1 once again brings the braille terminal back in “host mode”.

4.10.4 Setup main menu

The setup main menu consists of the following options:

“ser” for serial connections;
 “vol” for volume control of ABT sounds;
 “sl” for sound level to reactivate the ABT;
 “bt” for braille time sleep mode;
 “test” for testing the braille cells and touch cursor.

Use key 6 to decrease a value and key 7 to increase a value with options that have changeable values.

4.10.5 Serial connections (ser)

“Ser” has options for selecting serial port 2 and serial port 1 and each of these has the following sub-menus to connect serial devices to the ABT:

alva non-alva

“alva” is used when devices are connected which can be recognized by the ABT. These devices need not be specified, but are recognized when they are connected (signal DSR becomes active). When a device is connected, a row of beeps sounds with descending tones when the device is not recognized and with ascending tones if the device is recognized as an alva device. After selecting “alva” in the menu, the message “alva devices” is shown on the braille display. “alva” is the default value.

“non-alva” is shown on the display as xxxxxxxxxx par

where xxxxxxxxxx is the name of the device that must be selected in the menu. After selecting “non-alva”, an entry of the device list is shown. The device can be selected with key 6 and 7 (up and down). At present the list has two entries: “braille ‘n speak” and “brailscope”.

“Par” states the parameter settings for serial communication. There are four parameters “baud len stop par”:

“baud” for baudrate = xxxx
 “len” for length = x bits, (the number of data bits)
 “stop” for stop bits = x bit, (the number of stop bits)
 “par” for parity = xxxx (none, even, odd)

The default values for serial communication are 9600 baud, length 8 bits, 1 stop bit, parity none.

4.10.6 Volume (vol)

With this option it is possible to adjust the volume level of the bell. With key 6 the volume can be decreased and with key 7 increased. When the keys are kept depressed, a repeat function is activated. The volume can be adjusted between 1 and 16. The default value for volume is 16.

4.10.7 Sound Level (sl)

The sensitivity of the built-in microphone can be adjusted with option "sl" in the "setup" menu. In this way the recording level can be adjusted to the work environment. In a noisy environment a less sensitive setting will be more appropriate. In order to adjust the sensitivity of the microphone, do the following: From the "setup" menu select the "sl" sub-menu. The braille display shows: "sound level nnn". With key 6 a value can be decreased and with key 7 increased. When the keys are kept depressed, a repeat function is activated. The sensitivity can be adjusted between 1 and 100. The higher the number, the more sensitive the microphone (1 is very insensitive, 100 is very sensitive). The default value for microphone is 40.

4.10.8 Braille Time (bt)

With "bt" the time can be adjusted after which the braille display switches itself off. If the braille display is not in use for some time, for instance because you are called away, the "time clock" starts to operate. In order to adjust this time, follow the same procedure as with "sl". The default value for braille time is 255 seconds.

4.10.9 Testing the braille display (test)

Each cell of the braille display and the TC buttons can be tested for correct operation. When the braille display is in "local mode", press one of the TC buttons above the word "test". On the braille display the words "test mode" appear. This is the start of the test program.

NOTE:

In "local mode", the "test mode" can also be activated by pressing key 7.

Key 1: Escape key, end of the menu;
Key 2: lowest row of pins comes up;
Key 3: second row of pins comes up;
Key 4: third row of pins comes up;
Key 5: upper row of pins comes up;
Key 6: shows which TC buttons have been pressed during the test;
Key 7: all pins up.

In "test mode" it is recommended that you press a number of the TC buttons to check their proper operation. The TC buttons are arranged in groups. If one cell does not function, this may mean that others, linked to it, do not function either.

Pressing key 1 ends the test program and the braille display returns to "local mode", pressing key 1 once more brings the braille display back into "host mode".

NOTE:

In test mode, pressing a TC button will display all braille dots in the corresponding braille cell only. When operating key 6 is pressed, all TC buttons pressed since the beginning of the test will be shown, including the first TC button that was used to select the test option.

4.10.10 Schematic diagram of the local mode menu

The local mode menu consists of several levels. Below you find a schematic diagram that gives you a quick overview of the entire menu.

rec					
play					
stat	com	now xx s2=yyy s1=yyy			
	bat	vbat=x.xx vnet=yy.yy			
	dat	sn=xxxxxx fd=yyyyyy			
	brtb	braille=xxxxxx			
setup	ser	ser2	alva		
			non-alva	xxxxxxxxxx par	baud baudrate= len length= stop stop bits= par parity=
			ser1	alva	
			non-alva	xxxxxxxxxx par	baud baudrate= len length= stop stop bits= par parity=
		vol	volume=xx		
		sl	sound level=xx		
		bt	braille time=xxx		
		test	test mode		

4.11 Saving and loading braille parameter settings (ABTSET)

Using settings

In previous chapters, a variety of functions have been discussed which apply to a wide range of applications. Obviously, what may work well for one application may not work well for another. For example, the screen formats for a word processor and a spreadsheet are generally very different. The cursor types may differ, reference points will probably not be the same and it may be more convenient to use a different cursor representation for the word processor than for a database application.

To avoid the redundancy of manually setting the system parameters at the start of each application all settings of the ABT menu-functions for braille can be stored.

Below you find the description of automatic parameter switching for the braille program. At the end we give an example of loading settings.

Automatic parameter switching for braille

In previous versions of the ABT software only one set of parameters could be handled at a time and could only be saved and restored at DOS command level. For each application a new set had to be loaded before the specific application was started and after closing the application the original settings had to be loaded again.

It is now possible to make use of 10 sets of parameters at the same time. Since the program recognises which application is running, it will automatically load the appropriate application set of parameters. So while switching from one application to another, no user intervention is necessary.

The defined parameters can be stored into memory when you are still in the application itself, instead of going to the DOS command level first. All sets of parameters can be saved to disk later by means of the ABTSET program. The procedure of storing the settings into memory and saving a whole group of sets to disk will be described in the next paragraphs.

Loading application settings into memory

Loading settings for a specific application is done within the ABT-menu. When the application is running and the settings are made, press the PROG key. Select the "status" sub menu by pressing the touch cursor button above the word "status". Press the DOWN key to reach the second line of the status menu, which shows for instance:

```
Program name (active) is WP.EXE (save delete)
```

In this line the word "active" means that the program WP.EXE is the actual running application. (When working at DOS command level, the actual running program will be COMMAND.COM). When you press the touch cursor above "save", the current parameters are stored into memory for the program WP.EXE.

A different application can be loaded now and the same steps can be taken. In this way each application gets its own set of user defined parameters.

Some applications consist of several programs which run only shortly, for instance during start-up. It may be useful to make a setting for them, for instance in order to deal with a software cursor in a menu. When the program appears only shortly without the need for a user interaction, no parameter change is required and a setting need not be made for that program.

For a number of applications it is even sufficient to use the parameter settings of COMMAND.COM. In fact, a change in parameters during operation will then also be applicable to the other applications which have no parameter settings yet.

Saving all application sets to disk

If several sets have been stored into memory, all sets must be saved to disk by means of the ABTSET program.

Switch to the directory which contains the ABT software (probably C:\ALVA\BRAILLE) and type: ABTSET. The ABTSET program comes up with a menu with 3 options:

- 1 read settings
- 2 save settings
- 3 inspect settings

0 stop.

(Option 3 is mainly for testing and will not be explained here.)

If you choose option 2 all defined application sets will be saved to disk.

For each application a parameter file is made with the same name as the application itself, but with the last two letters of the extension replaced by "SE".

Examples: the parameter set for COMMAND.COM will be called COMMAND.CSE and the set for WP.EXE will be called WP.ESE. The first set is always reserved for working at DOS command level. The 9 other sets are available for applications.

After all parameters have been saved in these separate files, a list file with the standard name ALVA.LSE is made (text format). Each line contains the name of an application parameter file.

When a file name already exists, you may choose whether to overwrite or to save using a different filename. When you only press <Enter>, the parameters will not be saved and you will be asked whether to continue with the saving procedure or not.

Loading a predefined group of sets

In order to load a predefined group of application sets you can choose option 1 "read settings". In this case the list file ALVA.LSE is automatically chosen. You can also use the name ALVA.LSE as a parameter when calling ABTSET:

```
abtset alva.lse
```

Such a line is already included in the ALVA.BAT file to load the parameters without intervention from the user.

Deleting a parameter set from the application list

Deleting an application set may be useful if you want to add other programs to the list in ALVA.LSE. Go to the second line of the "status" menu. This line shows for instance:

```
Program name (active) is WP.EXE (save delete)
```

By pressing a touch cursor button above the word "delete", you remove the program from the list of application sets. All subsequent application sets are shifted one position backwards.

NOTE:

It is not possible to delete the first name "COMMAND.COM"

When you press the cursor key, the word "active" is replaced by "1" and the name of the first application set is shown (COMMAND.COM). By pressing the cursor key again the next application is shown. (An empty name indicates that no other more application sets are left.)

It is also possible to delete or replace lines in the file ALVA.LSE with a DOS-editor in order to determine the parameter files to be loaded.

Loading a single set of parameters

If you want to load only one application set, e.g. WP.ESE, then type from the type:

```
abtset wp.ese
```

If you would prefer to use old ABT-settings files, this still is possible. In that case type:

```
abtset abt380.ins
```

The file will be recognized as a parameter file for COMMAND.COM instead of a predefined group of application sets.

Note:

The program ABTSET.EXE can only be used while the braille display is operative, that is, when the program ABT3XX.EXE is currently running.

Using ABTSET in batch files

The commands for calling the settings and running the application might be included in a .BAT file which executes these commands automatically. See e.g. the file ALVA.BAT in the directory \ALVA, from which not only the ABT3XX.EXE program is started, but also ABTSET is called, activating a list of application sets. Needless to say that it is necessary to restart your computer after installing the software in order to activate your new settings files. For further details on batch processing consult a DOS-manual.

NOTE:

Keyboard driver programs such as KEYBUK, KEYBFR, KEYBIT and KEYB supplied with many MS-DOS versions, enable Typing symbols specific to different languages. These programs must be started (or loaded) before the ABT software.

An example of loading braille settings:

```
REM Sample ALVA.BAT file that automates the loading of the ABTprogram.
REM We assume a model 340 ABT with a parallel connection for the braille
REM program to LPT1
REM The software will be loaded for the greater part in expanded memory.
REM A personal braille table will be loaded too.
REM The software was installed to C:\ALVA.
REM
ECHO OFF
C:
CD\ALVA
CALL ABT 340 1 ABTLOAD
CD BRAILLE
IF EXIST ALVA.LSE ABTSET ALVA.LSE
ABTTAB MYTABLE.TAB
CD\
```

4.12 Changing and checking a braille table (ABTTAB)

The ABT has a maximum of four interchangeable braille tables available for use at any given time. By means of the ABTTAB program, it is possible to load different sets of tables. By default, the four tables in the default set are upper case German braille (European), lower case German braille, upper case American braille and lower case American braille. Other braille tables (such as SPANISH.TAB for Spanish braille representation) may be added, but will replace one of the four existing braille tables.

The program ABTTAB.EXE enables the customization of braille symbols and facilitates the saving and loading of user definable tables. This allows you to change the way the characters are displayed on the braille terminal. This is often useful with extended ASCII characters such as vertical and horizontal form symbols, boxes, shadings, etc.

In the files TABGERM and TABUSA an overview of the German and the American braille codes is given (in text format). Selection of one of the four braille tables is available from the PROG F3 F1 sub-menu. The braille codes within a table can be changed with the program ABTTAB.EXE. The program must be started from the ALVA directory or from the directory where ABTTAB.EXE and CHARS files reside. To first modify an existing braille table, execute the command ABTTAB with no parameters. This brings up an options menu: "read", "save", "change" or "print" the braille table. First the "change" option must be used, then the braille table must be saved. All modifications to any of the four braille tables will be saved. These new tables will in essence be copies of the original tables with any modifications you have made.

Upon selecting "change", the ABTTAB program prompts you for both a table to modify and an alternate internal name for the chosen table. For instance, table four by default is called "usa lc", which is selected for six-dot braille. Perhaps a more descriptive name for table four might be "sixdot". Note that only six characters are allowed in the name, (spaces are allowed). Hence, when consulting the PROG F3 F1 menu, the name "sixdot" will subsequently appear as the name for table four. Alternatively, to accept the default name, just push the <Enter> key.

After selecting a table to modify and entering a table name, a line will be presented containing an ASCII code and the corresponding braille code. A new code can be entered by moving the cursor to the desired line and typing the new dot numbers representing the desired symbol, followed by <Enter>. It is possible to scan forward and backward in the braille table by using the keyboard cursor up and down keys. Continuously holding these keys down scrolls through the table at a faster speed.

Save the modified braille table by first typing "0" (zero) on any line; this terminates the view/change mode and returns to the options menu. The "save" option in the menu can then be used to save any modifications. The ABTTAB program will prompt for a file name in which to save the set. Use either the same name or enter a new name for the braille tables. It is recommended, but not required, that the name of the file containing the tables be saved with an extension such as "TAB". Select option zero to exit the ABTTAB program.

The braille table can be called by using the "read" option in the program, or by supplying the file name as an argument on the ABTTAB.EXE command-line, for instance: ABTTAB FILENAME.

The ABTTAB program can be included in the AUTOEXEC.BAT file to automatically load a set of braille tables. The ALVA directory should be the current working directory upon execution of the ABTTAB program, or full path names must be specified for correct results. See section 1.7 sample autoexec.bat file on page 7. Consult a DOS-manual for further details on the AUTOEXEC.BAT file and batch processing.

The ABTTAB.EXE program can also be used to view the codes that are used in the braille table, by selecting the "change" option from the ABTTAB program menu. In this case no actual changes should be made. That is, do not save the table upon exiting the ABTTAB program.

The NONGRAPH.TAB which you can find on the ABT program disk, is used for braille tables in which characters with an ASCII-value higher than 160 are represented as spaces. When you include the line

abttab nongraph.tab

in your AUTOEXEC.BAT file, this will discard from the braille display all graphic symbols such as lines that are used to indicate screen borders, etcetera.

PART 5: FOR FURTHER READING

5.1 ABT software and firmware updates

5.1.1 Software updates

Software updates that you receive on disk may be installed as follows. Insert program disk 1 into the diskdrive and type:

```
a: <Enter>  
install <Enter>
```

The current \ALVA directory will then automatically be renamed to \ALVA.OLD or, if this directory already exists, to \ALVA.OL1. The new software will then be copied from the disk to the computer's hard disk, as described in section 1.5.4 using the installation program starting on page 4.

5.1.2 Firmware updates

Some of the ABT functions such as sound level, braille time and others are implemented internally on board the ABT in a FLASHROM. This internal software is also known as "firmware". Updating the firmware of your ABT is an easy way to incorporate new functionality into the braille display. To install new firmware without using the installation program, use the following method:

Go to the directory \ALVA\FIRMWARE. Switch on the ABT and type from the DOS prompt:

```
load [parallel port] [ABT-type]
```

or:

```
load [ABT-type] [parallel port]
```

where:

[parallel port] = the number of the parallel port to which the ABT is connected. When you use LPT1, this value is optional. The default setting is 1 (for LPT1).

[ABT-type] = the ABT-type for which firmware should be loaded. This identification consists of 5 characters, e.g. abt40, abt80, etc.

The command may be entered either in lower case characters or capitals, or a mixture. The ABT-type value is optional.

When no ABT-type is given, the loader will try to identify the currently loaded type. The new firmware will then be of the same type as the older one. This automatic identification only works when an older version of the firmware is present.

When a value for the ABT-type has been given in the command line, this takes preference over the automatic identification. Thus, a different type of firmware may be loaded at any given time.

The ABT-type value is compulsory when firmware is loaded for the first time. In that case it is not possible to use the automatic identification.

The appropriate firmware is loaded from the firmware file for that specific type. Firmware for the ABT340 is loaded from the AOUT340.A20 file.

When the loader has been started, the current ABT3 identification is given. After a few moments the message "Moving firmware to ROM..." appears on the screen. When you hear a short high beep,

followed by a longer, low beep, the update is completed successfully and the program returns to the DOS-prompt.

5.1.3 Differences in software updates

As a rule, all software updates are backwards compatible with respect to older hardware with one exception. The ABT3 models have a "local mode", as described in section 4.10. The ABT2 models do not have a "local mode".

5.2 Simultaneous computer connections

It is sometimes desirable to connect the ABT to more than one computer at the same time. Although the ABT will accept data from only one computer at any one time, the ABT makes it convenient to switch between input sources by means of the TCS buttons above the status cells. Simply connect the appropriate cables to the parallel or serial ports on the back of the braille display, enter local mode by simultaneously pressing the PROG, HOME and CURSOR-keys and select the corresponding status cell touch cursor button. For example, the ABT could be connected to one computer via the ABT parallel port, one computer on the ABT serial 1 and a third on the ABT serial 2. By default, the method of input is by means of the parallel port. To select an input mode of serial 1, press TCS3. To select serial 2, press TCS2. TCS1 selects parallel input mode.

For convenience, when the braille display is turned off, it retains the last active mode of connection.

5.3 Connecting several ABT's in sequence

It is possible to connect a second ABT to the first, a third to the second ABT, etc. so that several users can look at the same information from the PC. This is particularly useful in educational situations. To do so, the serial ports of all the ABT's should be set to "alva" mode. See section 4.10.5 serial connections (ser) on page 50 for details. The first ABT may be connected to the PC in the normal way either with a parallel or a serial cable. All subsequent ABT's are interlinked with a serial cable and should be set to serial communication. How to do this is described in section '1.5.3 changing from parallel to serial communication and vice versa' on page 3. Upon connection, the first ABT gives a number of beep sounds in a rising pitch. Also, make sure all ABT's have the same firmware date.

5.4 Installing the Grade Two Translator (USA, UK and France only)

One option available to you is to install a filter which displays grade two braille ("contracted braille"), rather than the default grade one braille ("computer braille"). Grade two versions are available for the USA, the UK and France. Please check the README file on the program disk for more details.

Be advised that the grade two translator requires about 65 kilobytes of RAM extra as compared to the standard software. For general information concerning contracted braille, please read the GRADE2.WP5 or GRADE2.ASC file on the program disk.

Finally, note that the grade two translation table is for US braille. Other translation tables such as French and Spanish are available upon request.

5.5 Changing the operating key order on 80-cell displays

The standard key definition for operating keys 4-7 for the 80-cell display is: UP DOWN DOWN UP.

It is now possible to change this order to UP UP DOWN DOWN, which is more similar to the situation with a 40-cell display and which is also used by some Windows access programs.

In order to change the key order, a parameter "k2" must be inserted as the first parameter in the program call.

Examples:

abt380 k2 1 (menutext from LANG00.TXT, printer port 1)

or:

abt380 k2 fr 1 (menutext from LANGFR.TXT, printer port 1)

If you want to use this with the batch file ABT.BAT you must include this parameter in the line where the ABTxxx program is called.

5.6 How to run the ABT software without the hardware connected

In some instances, running the ABT software without having a ABT3 series connected to the computer can be useful. The method described below allows testing the ABT software in conjunction with a certain application, without a braille display actually connected. The software is run by entering the ABTXXX.EXE program without any parameters for parallel or serial connection. To run the various terminals use the following commands at the DOS-line:

Examples: For the ABT3 series 40-cell model type **abt340**
For the ABT2 series 80-cell model type **abt280**

Num Lock	/	*	-
7	8	9	+
4	5	6	
1	2	3	
0		Del	

For the ABT380, keep the right <Shift> key on the computer keyboard depressed while using the numeric keypad as follows:

A

7 = PROG
8 = HOME
9 = CURSOR
4 = UP
5 = DOWN
6 = DOWN
1 = UP

For the ABT320 and ABT340, press and hold the right <Shift> key on the computer keyboard while using the numeric keypad as follows:

7 = PROG

8 = HOME
9 = CURSOR
4 = UP
5 = LEFT
6 = RIGHT
1 = DOWN

5.7 Alternate Ways of Connecting and Using the ABT

5.7.1 The internal ABT card

The oldest versions of the ABT were connected to the computer via a special interface card which was placed into the computer. This interface card is no longer used. The ABT is now connected to the parallel port or the serial port of the computer for easier connection to a variety of computers. With braille displays that use the interface card, the program ABT280.EXE can be called without any parameters.

5.7.2 Generating touch cursor commands from the hardware

Some programs (especially terminal emulators such as IRMA, etc.) choose not to accept the commands generated by the ABT to route the application cursor by means of the touch cursor. An alternative method is to have the hardware of the braille display generate the cursor commands. To do so, the computer keyboard must be connected to the ABT using the right 5 pin round DIN connector at the backside of the ABT, and the ABT must be connected to the keyboard input of the computer using the left 6 pin round DIN connector. Both can be found at the back of the ABT. The ABT is facing forward when referring to left and right connectors. The cable needed is supplied with the external keypad and is also available on request. Function PROG F3 F10 must be adjusted to one of the options shown below.

In addition to options 1-5, F3 F10 has options 6-10 "extrn" (external) to generate electronic signals to move the cursor with the touch cursor. Various options may need to be tried for proper functioning of the touch cursor. The options are:

- 6 Make signal only, 18 times per second (adequate for most programs);
- 7 Make signal only, 9 times per second (same as 6, but at a slower rate);
- 8 Send XT scan codes on AT PCs. This is a non-standard option that certain programs might select, so option 6 may be necessary at the DOS-command level and option 8 with the application;
- 9 Same as option 8, with make and break codes;
- 10 Same as option 6, with make and break codes (normally break codes are not processed but some programs may look at them).

NOTE:

When using an XT computer only options 6 and 7 are usable. NumLock should be off, otherwise numbers are produced. This can be done automatically with the RESETKBD.EXE program. If none of these options work, check if the option(s) work at the DOS-command level or with a word processor or editor like WordPerfect. Check also whether the CURSOR-keys on the numeric part with numbers and arrows on the keys produce a cursor movement. The separate arrow keys produce different scan codes and may be usable. If the option does not work at the DOS-level, the ABT circuit is defective, or the ABT program does not communicate correctly with the PC. You may also try a keyboard from another PC where the system worked correctly.

5.7.3 The external keypad

An external function keypad is optionally available when using the computer function keys is not convenient or when conflicts occur between the application's use of the function keys and the ABT's use of these keys. This happens in particular with some terminal emulation programs (IRMA, etcetera). Using the keypad eliminates the need to use PROG prior to pushing the function keys. The external keypad is connected to either of the 9 pin serial D connectors on the back of the ABT, and sits comfortably alongside the case. With the external keypad, the functions of the ABT program can be invoked immediately, without having to press the PROG-key first. Pressing PROG is allowed however, and in some cases necessary when reading the menu or defining reference points.

Setup of the external keypad requires entering "local mode", then the "setup" menu followed by "ser" for serial, selecting either serial 2 or 1 and finally "alva".

Please check the KEYPAD3.DOC file in the \ALVA\DOC-UK subdirectory on your harddisk.

5.8 Battery and power usage

5.8.1 Power supply for the ABT380

The ABT380 is connected to the AC electrical outlet by means of the power adapter supplied with it. Unlike the ABT340 portable and ABT320, the ABT380 does not have internal, rechargeable batteries.

NOTE:

Should the ABT380 for some reason stop functioning correctly during normal use, the system can be switched "off" without influencing the ABT-menu settings. Pull out the adapter plug at the back of the ABT380 and then reconnect it.

5.8.2 Power conservation for the ABT380

Keeping energy use to a minimum extends the life of the braille cells. In order to keep energy consumption to a minimum, you may control two power consumption variables which are available from the Local Mode. By means of the "bt" (braille time), the automatic turn-off of the braille display can be adjusted. The "sl" (sound level) parameter affects the level at which the various clicks and beeps are sounded. For more information, see sections 4.10.7 sound level (sl) and 4.10.8 braille time (bt) respectively.

When the braille display has switched itself "off" (sleep mode), normal operation can be resumed by pressing a front panel key on the ABT. A short click is produced and the braille display is refreshed.

5.8.3 Power supply for the ABT320 and ABT340

The ABT320 and ABT340 can be connected to the AC electrical outlet by means of the power adapter supplied with it. Alternatively, the ABT320 and ABT340 can run on its rechargeable batteries. In order to check whether the braille display is connected to the AC electrical outlet or not, a number of acoustic signals have been built into the ABT320 and ABT340, which can be heard when switching them "on" and "off". When the power adapter is connected, a long beep can be heard when switching the braille display "on". When switching "off" a short beep is emitted. This means that the batteries will be recharged (if necessary). If no sound is emitted, check whether the power adapter is connected to the AC electrical outlet and the connector plugged into the braille display. The power adapter can remain connected indefinitely.

When the ABT320 and ABT340 are switched "off" and the connector of the power adapter is plugged into the braille display, a low beep is emitted to indicate that the batteries will be recharged. The braille display itself does not have to be switched "on" to recharge the batteries.

When the ABT320 and ABT340 are not connected to the AC electrical outlet and it is switched "on", a short and a long beep can be heard. This indicates that the braille display is running on the batteries. When it is switched "off", no sound is emitted.

When the braille display has switched itself "off" (sleep mode), proper operation can be resumed by pressing any key (when the "on/off" switch is "on"). The braille display becomes active and clicks are emitted as the ABT keys and TC buttons are depressed.

As the battery power is depleted to a minimum threshold, four quick audible beeps are emitted from the ABT speaker in successive intervals. As the power level drops further, the time between successive intervals shortens, providing an idea of how much power remains. Consequently, you have approximately 30 minutes to connect the AC adapter. Note that 30 minutes is an approximation, depending on the amount of usage during this time.

5.8.4 Battery care for the ABT320 and ABT340

During the time that the ABT320 or ABT340 is not connected to the main electrical supply, it is important to minimize the current in order to save the batteries. This can be done by changing two parameters in the setup menu of the "local mode". "sl" (sound level) and "bt" (braille time) set the conditions for automatic turn-off and on of the braille display. See sections 4.10.7 sound level (sl) and 4.10.8 braille time (bt) for more information.

The ABT can be connected to the power adapter indefinitely without harm to the system or components. Occasional exercising of the batteries by running the ABT on batteries until it runs down is helpful to extend battery life but is not necessary.

Under normal conditions, the batteries of the ABT320 and ABT340 should provide enough energy to work on its own for a period of about seven hours.

5.8.5 Security against high voltages

A safety function has been added to the ABT that gives a warning signal when a power adapter is connected that supplies more than 11.5 Volts. This safety function warns you against damaging the ABT. When the ABT spontaneously starts giving beep sounds, even though the power adapter you use does not supply more than 11.5 Volts, the function can be switched off as follows:

1. Switch the ABT off;
2. Pull the power adapter plug out of the back of the ABT;
3. Put the plug back in while you keep TC5 depressed;
4. Release TC5.

In order to re-activate the function, follow the same procedure while you keep TC1 depressed. By default this function is switched on.

If your ABT has a FLASHROM memory, instead of an EEPROM (ask your distributor if this is the case for your ABT) and firmware dated 010197 or later, continue with:

5. Switch the ABT on;
6. Enter "local mode" by pressing the PROG, HOME and CURSOR keys all at the same time;
7. Leave the local mode by pressing the PROG-key.

The correct setting is now stored in memory, even after you have switched off your ABT.

5.9 How large screen formats are displayed

The ALVA ABT3 series will automatically handle screen formats up to 100 lines and 132 columns. The operating keys for the ABT380 will be redefined as PROG, HOME, CURSOR, UP, LEFT, RIGHT and DOWN. Word wrap will be initially off (see section 4.2 about the ABT320 and ABT340). When the screen transforms back to 80 columns the old definitions are restored automatically. The sixth line of the "status" sub-menu that appears after you press the PROG-key, shows the screen size for reference.

5.10 How to fasten a notebook PC to the ABT340

- a. The top side of the ABT340 and the bottom side of the notebook PC should be cleaned and de-greased.
- b. Stick the Velcro parts with the hooks to the bottom side of the Notebook PC and press the soft Velcro parts onto the parts with the hooks. Remove the protective back of the soft Velcro parts.
- c. Lay the Notebook PC with the bottom side up and the ABT with the top side up on the table with the connectors facing each other.
- d. Connect the Notebook cable and place it in such a position that it is lying between the Notebook PC and the ABT before fastening them together.
- e. Carefully place the Notebook PC on top of the ABT.
- f. The ABT and the Notebook PC should not be separated within the first 24 hours after fastening them together.

5.11 The use of beep sounds in the ABT-software

Beep sounds are part of the ABT software to let you know whether a particular action has been carried out, or to warn you in specific situations.

when:	you will hear:
<ul style="list-style-type: none"> • you switch power on • you switch power off • an action or the selection of a particular option within a menu is confirmed (Within the local mode menu) 	<ul style="list-style-type: none"> 2 short beeps, 1 high and 1 low 1 short beep 1 short beep
<ul style="list-style-type: none"> • you start recording a message (within the local mode menu) 	<ul style="list-style-type: none"> 3 short beeps
<ul style="list-style-type: none"> • you end a recording • the software recognizes a device and confirms it is connected 	<ul style="list-style-type: none"> 1 short beep a series of beeps in ascending pitch
<ul style="list-style-type: none"> • the software does not recognize a device or confirms it is disconnected 	<ul style="list-style-type: none"> a series of beeps in descending pitch
<ul style="list-style-type: none"> • you switch on a menu function 	<ul style="list-style-type: none"> 1 high beep

- you switch off a menu function 1 low beep
- the batteries are running low (applies to the ABT320 and ABT340 only) 4 short beeps

Regulatory notices

All ALVA ABT3 series Models comply with the FCC Class B rating.
The FCC ID Numbers are:

KWTALVAABT-3-23X -- for the ALVA ABT3 series 20 (Portable);
KWTALVAABT-3-43 -- for the ALVA ABT3 series 40 (Portable);
KWTALVAABT-2X01 -- for the ALVA ABT3 series 40/80 (Desktop);
KWTALVAABT-3-85 -- for the ALVA ABT3 series 85 (Desktop).

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Thank You

Thank you again for selecting the ALVA ABT3 series. If you have any suggestions for improving our products and manuals, or have any questions concerning the functionality of the ABT, please contact us using the information found in the Preface.

Enjoy your system!

APPENDIX A: QUICK REFERENCE GUIDE

BRAILLE FUNCTIONS (PROG+FUNCTION KEY)

F1	Show status before and after pressing a function key
F2	Divide the braille display into parts (only for the ABT380)
F2	Word wrap (only for the ABT320 and ABT340)
F3	Select braille table, cursor representation and others
F3 F1	Select a braille table
F3 F2	Select cursor representation
F3 F3	Change the bell position
F3 F4	Margin indicator
F3 F5	Select ASCII-value for cursor
F3 F6	Select position of optical indication of the braille display
F3 F7	Set a software cursor
F3 F8	Attribute representation with dot 8
F3 F9	Reserve the function keys exclusively for braille display use
F3 F10	Define the operating speed of the touch cursor
F3 F11	Set the ALVA Spacepad
F3 F12	Block functions
F4	Attribute information
F5	Cursor tracking
F6	Skip blank lines
F7	Redefining ABT operating keys as cursor up/down (cursor coupling)
F8	Control of ALVA Braille Terminal 380 partition 1 or 2
F9	Follow hard- or software cursor
F10	Automatic cursor switching
F11	Capitals indication
F12	Grade 2 braille on/off

SHORT KEYS FOR BRAILLE FUNCTIONS

The ABT320 and ABT340 operating keys are called from left to right: PROG, HOME, CURSOR, 4, 5, 6 and 7.

The ABT380 has three extra keys on the right-hand side CURSOR, HOME, PROG.

PROG	Open/close the PROG-menu
PROG+HOME (F11)	Capitals indication
PROG+CURSOR (F5)	Cursor tracking
PROG+TC	Display ASCII-value
PROG+FUNCTION KEY	Execute a function immediately
PROG+HOME+CURSOR	Activate local mode
PROG+HOME+TC	Define attribute with dot 8 (F3 F8)
PROG+HOME+FUNCTION KEY	Set screen reference point
PROG+KEY 4 (F7)	Cursor coupling
PROG+KEY 5 (F8)	Operate partition 1 or 2 (ABT380 only)
PROG+KEY 6 (F9)	Follow hard- or software cursor
PROG+KEY 7 (F10)	Automatic cursor switching
HOME	Braille display to first or last screen line
HOME+CURSOR	Display attributes while pressed
HOME+CURSOR+TC	Define software cursor (attribute) (F3 F7)
HOME+TC	Set left braille margin
HOME+KEY 4	De-activate all attributes of F3 F8
HOME+KEY 5-7	Activate attributes 1-3 of F3 F8
HOME+F1-F10	Jump to screen reference point 1-10
CURSOR	Bring braille display to cursor line
CURSOR+TC	Define software cursor (ASCII)(F3 F7)
CURSOR+KEY 4	Select hardware cursor
CURSOR+KEY 5-7	Select software cursor 1-3 of F3 F7
CURSOR+F1	Select hardware cursor
CURSOR+F2-F10	Select software cursor 2-10 from line 3 of the Status sub-menu

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