Focus 40 and Focus 80

Refreshable Braille Displays
User's Guide Document

Federal Communications Commission Notice

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 or more 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.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Attention

This unit has been shipped with cables that allow compliance with FCC Regulations. If replacement cables are needed in the future, contact Freedom Scientific to obtain the appropriately shielded cable.

Important Notice

This device has no user-serviceable components. Any unauthorized attempt to service or replace internal components by opening the case will void the product warranty.

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Features

The Focus 40 and 80 refreshable braille displays provide a tactile interface to your computer. Used together with screen access software such as JAWS® for Windows, the Focus braille display can enhance your computing experience.

The Focus braille displays include the following features:

- 40 or 80 braille cells

- A cursor routing button above each braille cell

- A Navrow button above each cursor routing key

- 8-key Perkins-style braille keyboard, with the addition of two SHIFT keys

- Two panning buttons, two rocker bars, two selector buttons, and (on the Focus 80 only) two panning rockers

- Two Whiz Wheels®, one at each end of the display, for quick navigation of files, lists, and menus

- VariBraille adjustable braille dot firmness

- Status cells configurable to either end of the display

- Rapid Reading mode for quick review of files

- USB connection to computer

- Removable keyboard stand that doubles as a carrying handle

What's in the Box?

The Focus package includes the following items. If you find that you are missing any of the components listed below, please call Customer Service at (800) 444-4443.

- Focus 40 or 80 braille display

- Folding Keyboard Stand/Handle

- USB Cable, 6-foot

- Carrying Case

- Manual in Print and braille

- Companion CD

- Warranty registration cards

- Product support insert

Physical Layout

On the left side of the display, there is a standard B USB port. The Focus display does not require an external power source.

The Focus displays have their braille cells near the middle of the unit so they are as close as possible to the keyboard. There is a cursor routing button above each braille cell and a Navrow button immediately above each cursor routing button.

Between the braille cells and the front of each unit, under a removable plastic cover, there are eight keys similar to those on a Perkins-style braille keyboard. These keys are used to enter commands. Along the front edge of the keyboard are three buttons, **LEFT SHIFT**, **SPACEBAR**, and **RIGHT SHIFT**. These three buttons are used together with the braille keys when entering commands. At both ends of the display's surface are Whiz Wheels used for easy navigation.

On the front edge of the Focus display are the following controls, located from left to right:

- Left panning button

- Left rocker bar

- Left selector button

- Left panning rocker (Focus 80 only)

- Right panning rocker (Focus 80 only)

- Right selector button

- Right rocker bar

- Right panning button

Controls

The Focus braille displays provide two Whiz Wheels, two panning buttons, two rocker bars, two selector buttons two panning rockers (Focus 80 only), and cursor routing buttons and Navrow buttons above each braille cell. See the chart following the Navrow section for a full listing of all multiple-control functions.

Whiz Wheels

The Focus Whiz Wheels allow you to move quickly through files, dialog boxes, lists, and menus. In a file, you can move by line, sentence, paragraph, or pan backward and forward. In a dialog box, you can move between the available controls, and even interact with them. In a menu, you can move up and down through the menu items.

Panning Buttons

The Focus panning buttons pan left or right one display width (40 or 80 cells) each time they are pressed. The two panning buttons are oval-shaped, making it easy to activate them with the thumbs when your hands are positioned on the braille cells for reading. Press the panning button on the left front edge of the Focus to pan left; press the panning button on the right front edge of the Focus to pan right. The functions of the panning buttons can be reversed so that pressing the left panning button causes the Focus display to pan right and pressing the right panning button causes it to pan left. Please refer to help for the JAWS Keyboard Manager for details on modifying these and other control assignments.

Rocker Bars

The rocker bars provide movement up or down by line. Press the top of the rocker bar to move up one line; press the bottom of the rocker bar to move down one line. The rocker bars, in combination with the panning buttons, move to the beginning or end of the line on which the cursor is positioned. Press a panning button and the top of a rocker bar to move to the start of the line. Press a panning button and the bottom of a rocker bar to move to the end of the line.

Selector Buttons

Used by themselves, the selector buttons control Auto Advance. When pressed in combination with other controls, the selector buttons perform multiple functions.

Panning Rockers (Focus 80 only)

The two panning rockers on the Focus 80 function as extra panning buttons. However, they move in the same way as the rocker bars. Press up on either of the panning rockers to pan left and press down to pan right.

Cursor Routing Buttons

Cursor routing buttons are located above each Braille cell. There are cursor routing buttons above each braille cell. Press a cursor routing button to move the cursor to that point, or to select a link in a web page or email message. In line mode, press a cursor routing button to open a menu or select menu items.

Press and hold the **RIGHT SELECTOR BUTTON** while simultaneously pressing a **CURSOR ROUTING BUTTON** to simulate a right mouse click at that location.

Navrow Buttons

Located immediately behind the cursor routing buttons are the Navrow buttons. The number of Navrow buttons is the same as the number of braille cells on the Focus display. The Navrow buttons have two functions–ten serve as hot keys, providing quick access to functions or settings; and the rest serve as extra panning buttons.

Just behind the Navrow buttons are five raised marks to aid in quick orientation to both the Navrow and cursor routing buttons: one each above and to the left of the fifth Navrow button, before the first hot key, in the middle of the row, above and to the right of the tenth hot key, and to the right of the fifth panning button from the right end of the row. The ten Navrow buttons immediately below the center mark are the hot keys and are numbered, to the left of the center mark, 1 through 5; the five buttons to the right of this mark are numbered, left to right, 6 through 10. The remaining buttons serve the same function as the panning buttons; those to the left pan backward and those to the right pan forward.

Note: There is one important exception to the above. If you are using JAWS 6.0 or later, the two Navrow buttons immediately to the left of the first hot key and the two to the right of the tenth hot key are assigned the following special functions.

Function	Navrow
Toggle Auto Advance Mode	Second button to the left of first hot key
Repeat Last Flash Message	First button to the left of first hot key
Decrease Auto Advance Speed	First button to the right of tenth hot key
Increase Auto Advance Speed	Second button to the right of tenth hot key

The Navrow hot keys and their functions are shown in the following table.

Function	Hot Key
Route Braille Cursor to PC Cursor	1

Function	Hot Key
Active Cursor Follows Braille Cursor	2
Braille Cursor Follows Active Cursor	3
Top of Window	4
SHIFT+TAB	5
TAB	6
Bottom of Window	7
Toggle Contracted Braille (Grade 2) Translation	8
Expand Current Word	9
Route Braille Cursor to Active Cursor	10

Table of Multi-Control Functions

Functions	Panning Buttons
Toggle Auto Advance Mode	LEFT SELECT+RIGHT SELECT
Decrease Auto Advance Speed	LEFT SELECT
Increase Auto Advance Speed	RIGHT SELECT

Functions	Panning Buttons
Left Mouse Click	PANNING BUTTON+CURSOR ROUTING BUTTON or PANNING ROCKER UP+CURSOR ROUTING BUTTON or PANNING ROCKER DOWN+CURSOR ROUTING BUTTON
Control + Left Mouse Click	ROUTING BUTTON CHORD
Page Down	LEFT or RIGHT SELECT+ROCKER DOWN
Page Up	LEFT or RIGHT SELECT+ROCKER UP
Top of File	LEFT PANNING BUTTON+SELECT BUTTON or SELECT BUTTON+PANNING ROCKER UP
Bottom of File	RIGHT PANNING BUTTON+SELECT BUTTON or SELECT BUTTON+PANNING ROCKER DOWN
End	PANNING BUTTON+ROCKER BAR DOWN
Home	PANNING BUTTON+ROCKER BAR UP

Functions	Panning Buttons
Next Line	ROCKER BAR DOWN
Prior Line	ROCKER BAR UP
Pan Left	LEFT PANNING BUTTON or LEFT PANNING ROCKER UP
Pan Right	RIGHT PANNING BUTTON or RIGHT PANNING ROCKER UP
Select Text	RIGHT SELECT BUTTON +CURSOR ROUTING BUTTON
Select Block	SELECT BUTTON+CURSOR ROUTING BUTTON at beginning of block; repeat at end of block
Toggle Whiz Wheels On/Off	LEFT or RIGHT WHIZ WHEEL CHORD

Folding Keyboard Stand/Handle

The folding keyboard stand positions and angles your keyboard or laptop computer for ease of use with the Focus braille display. The keyboard stand also functions as a carrying handle.

With the back edge of the Focus braille Display facing you, align the flat, straight guide of the keyboard stand with the guide rails on the Focus display. Slide the keyboard stand in the guide rails until it is centered. Tighten the thumbscrews so that the display is firmly attached to the keyboard stand.

Tip: If the keyboard stand does not slide easily in the guide rails, you may need to turn the two thumbscrews left a couple of times so that the screw is flush with the surface of the guide.

You can adjust the keyboard stand to fit the width of your keyboard or laptop by pressing the center tab on the bottom side of the keyboard stand while pulling on the handle.

To use the keyboard stand as a carrying handle, remove your keyboard or laptop and flip the stand over the Focus. Then push the handle until it firmly locks around the Focus and you hear a positive "click."

Carrying Case

The water-resistant carrying case fits over both the braille display and keyboard stand. Whenever you transport the Focus, you should use the carrying case to protect it from environmental debris and damage.

The carrying case has a plastic card holder on its outside surface for a personal identification card. There is a pocket inside the case for storing the USB cable and other items.

Keyboard Cover

The keyboard cover snaps into place and fits securely over the braille keyboard, providing a sleek appearance and smooth, finished surface.

The cover has three tabs on the underside of its rear edge. These tabs are located at the left end, middle, and right end of the cover.

The tabs fit into three slots located directly behind the braille keys, immediately in front of and directly below the display. These slots are located behind the **DOT 7** and **8** keys and the **SPACEBAR**.

To snap the cover over the keyboard:

1. Hold the cover in both hands with the cover oriented so that the ribbed side faces down (smooth side up) and the three tabs are pointing away from you.

2. Position your hands at either end of the cover with your fingers toward the back of the cover and your thumbs along the front edge. One thumb should be placed on the release.

3. Holding the cover with the front edge pointing upwards at approximately a 45-degree angle, slide the tabs into the slots behind the braille keys.

4. Press firmly towards the rear of the display with your thumb(s), gently pressing the rear edge downward using your fingers.

5. Pivot the cover downward. Make sure that the tabs do not slide out of the slots and that you keep pressing firmly towards the rear of the display with the thumb that is placed on the release as you close the cover.

6. You will feel the tabs click into place and the cover will close over the keys.

7.   Close the cover completely. The tabs should fit into the three slots and the front edge of the cover should snap securely into place.

8.   To open the front cover, place a finger or thumb under the release located at the front edge of the cover between the select buttons and lift upward.

Connecting the Focus

The Focus braille displays are connected to your computer using the USB port. The display is powered from the computer through the USB connection cable.

Note: Not all USB ports provide enough power to run the Focus braille displays. If your USB connection does not provide sufficient power, use a powered USB hub instead.

Adding JAWS Support to the Focus Display

The Focus 40 and 80 displays are supported only in JAWS 5.0 and later versions. The displays do not function with versions of JAWS earlier than 5.0. Also, for all Focus-compatible versions of JAWS (6.0 and later), JAWS must be installed on your system *before* it can be used with the Focus displays.

Installing JAWS 6.0 or Later Versions

To configure the Focus 40 or 80 braille displays to operate with JAWS 6.0 or later versions, you only need to install the particular version of JAWS on your system and no custom set-up procedure is required. (Remember, JAWS must be installed on your system *before* it can be used with the Focus displays.) JAWS will automatically launch a Windows-based installation wizard to load the necessary application drivers on your computer.

Note: Windows XP will display a Found New Hardware Wizard, prompting you to define your JAWS installation. Follow the prompts as directed then select Finish to complete the installation. For Windows operating systems 98, 2000, and ME, no dialog box is displayed and JAWS is automatically installed on your system.

Once you have finished installing JAWS on your system, you must shut down and restart JAWS in order to run the application.

Installing JAWS 5.0 or 5.1

The Focus 40 or 80 displays cannot be installed during the installation of JAWS Versions 5.0 or 5.1. Install JAWS, and then follow the steps in the next section.

To add support for the Focus 40 and 80 to JAWS 5.0 or 5.1, do the following:

Note: The steps outlined in this document assume that you have installed both JAWS and Windows in their default locations.

Disconnect the Focus display from your computer when performing the following steps. Having the display connected during this process results in improper installation and failure of the display to operate properly.

1.   Run the file Focus_JAWS5.exe found on the CD included with your display. This creates a folder on your hard disk named Focus2 that contains six files.

2.   Copy the file FSBrl.jlb from the Focus2 folder to the JAWS program folder. This is normally C:\JAWS 50 or C:\JAWS510, depending on which version of JAWS you have installed. When prompted to replace the existing file select Yes.

3.   Copy the two files, Fsbrldsp.inf and Fsbrldsp.sys, from the Focus2 folder to the appropriate folder according to the list below. When prompted to replace an existing file select **Yes**.

   - C:\Windows\System32\Drivers if your computer has Windows XP.

   - C:\WINNT\system32\Drivers if your computer has Windows 2000.

   - C:\Windows\System32\Drivers if your computer has Windows 98 or Millennium Edition.

4.   Run the Modjkm.bat file found in the Focus2 folder to append new entries to the Default.jkm file. This adds the key definitions and mapping for the new display. If you prefer to add the entries manually, they are in the Focus20.txt file, located in the Focus2 folder. You can edit Default.jkm, located in the Settings\ENU folder of the JAWS program folder, using Notepad or another text editor. Add the entries to the end of the .jkm file.

5.   Copy the file Fsbrldspapi.dll from the Focus2 folder to the appropriate folder from the list below. When prompted to replace the existing file select **Yes**.

   - C:\Windows\System32 if your computer has Windows XP.

   - C:\WINNT\System32 if your computer has Windows 2000.

- C:\Windows\System if your computer has Windows 98 or Millennium.

6. Connect the Focus display and wait for the Windows New Hardware Wizard to start.

Note: If you have installed Windows XP Service Pack 2, a dialog asking if you want to connect to the Internet to retrieve files may appear. If you receive this prompt, choose **No**.

7. Choose the default, which allows Windows to search for the best driver for the device. When prompted, select the check box that allows you to manually specify a location and type the path to the Focus2 folder, "C:\Focus2."

Note: If the check boxes for floppy, CD, or Windows Update are selected, clear them.

8. When the wizard completes the installation, choose the Finish button.

9. Quit and then restart JAWS. Your new Focus braille display operates properly, including all the new keyboard functions.

Writing and Printing in Contracted Braille with the Focus 40 and 80 Braille Displays

The Focus 40 and 80 braille displays provide you with a means of creating a document on your desktop computer using contracted braille, and then printing the document as plain text.

Since the release of JAWS version 6.2, the Typing Mode feature has made it possible to type directly into a document on a computer by using the Perkins-style keyboard incorporated in the display. However, if you are writing in an application such as Microsoft Word, you could type in contracted braille and read it on the braille display, but you could not print what you typed unless you entered it in uncontracted braille since the program did not translate contracted braille back to text.

To write in contracted Braille, and to generate a readable print-out, you can use a free utility called **WinPrint** to do the job. The WinPrint utility allows you to print formatted files to a Windows printer through your computer. You will not have to use a DOS-based printer. You load the file on your COMPUTER with a .brl extension. It will then open in WinPrint, and print using the printer configured for your computer.

To write and print in contracted braille from the Focus, do this:

1. To download WinPrint from the Web, go to www.freedomscientific.com, choose Downloads, and then Notetaker Update, WinDisk and Nemeth Tutorial Software.

2. Scroll down to the section FREE WinPrint Download and select **WinPrint Download** link to display the winprint.exe dialog box.

3. Select **Run** from the dialog box to display the WinZip Self-Extractor feature, then choose **Unzip** to extract the WinPrint utility to your system's root (C:) directory.

4. From the Windows Start button, select Windows Explorer then locate the extracted WinPrint folder in the left screen-view.

Note: You must have a current version of WinZip loaded on your machine in order to extract the WinPrint utility to your system. Additionally, if Windows Explorer is already open on your system, you will need to refresh your screen-view to display the extracted WinPrint folder.

5.   Launch the Winprint utility by choosing the icon in the folder that was created in Explorer. An edit window is displayed.

6.   From the edit window, open the Settings menu by pressing **ALT+S** and selecting Options to display the Options dialog box.

7.   On the Back Translator section of the Options dialog box is a series of radio buttons. Select **ON** and press **ENTER**.

8.   You can turn off braille translation by pressing **G+SPACEBAR**, activating the Typing Mode on your Focus by pressing **LEFT SHIFT+SPACE+RIGHT SHIFT**, and beginning to type contracted braille.

Configuring the Focus Displays

The Focus braille displays provide several features that you can customize to suit your needs. You can adjust the location of the status cells, define the start and end positions of the reading line, vary the firmness of the braille dots, and enable a Rapid Reading mode.

These settings are all adjusted by means of the JAWS Configuration Manager, Set Options, Braille Options, Advanced Braille Display Options. Open Default.jcf to adjust these settings for all applications, or open an application-specific .jcf file to adjust settings for that application. For more information, refer to the help for JAWS Configuration Manager.

Placement of Status Cells

You can specify if the informational Status Cells are to be located on the left or right end of the display, or choose to not display them at all. The status cells are located at the left end of the display by default.

Reading Line

Specify the start and end cell for display of information. Use the Reading Line edit spin boxes to display information only within the portion of the display you want to use. The default settings are determined by the location of the Status Cells and the display length.

Variable Braille Dot Firmness

Specify the firmness of the braille dots on the Focus display. There are five levels of firmness. Adjust the display to the level of firmness most suited to the sensitivity of your fingers.

Rapid Reading

Set the Focus display to use only 20 braille cells. Limiting the braille display to 20 cells may increase your reading speed. When the Rapid Reading check box is checked in the Focus Braille Options dialog, the Placement of Status Cells radio buttons and Reading Line edit spin boxes are disabled.

Focus Keyboard Commands Overview

This section describes the keyboard command assignments for JAWS and the Focus braille displays. Once you understand this methodology, there is no need to memorize a long list of commands. The commands are separated into Convenience commands, JAWS commands, Windows commands, and Braille commands. There is only one assignment pattern for each. Focus commands are consistently based on JAWS and Windows commands. If you are familiar with JAWS and Windows keyboard commands, Focus commands are very easy to learn. If you become familiar with Focus commands, JAWS and Windows keyboard commands are also easy to learn.

Note: Some of these commands duplicate functions of the panning buttons, rocker bars, selector buttons, and panning rockers detailed earlier in this manual.

Exceptions

The computer braille number and function key relationship does not apply to the List System Tray Icons command, **INSERT+F11** on the keyboard. **RIGHT SHIFT+K** (**RIGHT SHIFT+DOTS 1-3**) has been assigned to this command.

The command to open the Window List dialog, **INSERT+F10**, is **RIGHT SHIFT+0** (**RIGHT SHIFT+DOTS 3-5-6**).

Commands that have been assigned using the Convenience Commands convention are not duplicated using the JAWS/Windows assignment convention.

There are other exceptions based on the availability of keys, however we have attempted to maintain consistency with the JAWS or Windows commands wherever possible.

Convenience Commands

These commands are the most common functions and are performed directly from the braille display. All convenience commands use only braille keys. These commands do not use the **SHIFT** keys or **SPACEBAR**.

Note: For ease of use, we have provided both the braille signs for each command and the dot pattern equivalents. If there is no braille sign corresponding to the dot patterns, the dot patterns are listed in both columns.

Table of Convenient JAWS and Windows Commands

Description	Braille Sign	Braille Dot Positions
Start Menu	ST Sign	DOTS 3-4
Menu Bar	9	DOTS 3-5
Minimize All Apps	D	DOTS 1-4-5
Keyboard Help	TH Sign (Computer Braille Question Mark)	DOTS 1-4-5-6
ENTER	DOT 8	DOT 8
BACKSPACE	DOT 7	DOT 7
ESC	Z	DOTS 1-3-5-6

Table of Convenient Navigation Commands

Description	Braille Sign	Braille Dot Positions
TAB	DOTS 4-5	DOTS 4-5
SHIFT+TAB	B	DOTS 1-2

Description	Braille Sign	Braille Dot Positions
PAGE UP	K	DOTS 1-3
PAGE DOWN	DOTS 4-6	DOTS 4-6
HOME	Comma	DOT 2
END	DOT 5	DOT 5
Top Of File	L	DOTS 1-2-3
Bottom of File	DOTS 4-5-6	DOTS 4-5-6
Next Document Window (CTRL+TAB)	W	DOTS 2-4-5-6
Next Line	DOT 4	DOT 4
Prior Line	A	DOT 1
Move Left on Current Line	DOT 3	DOT 3
Move Right on Current Line	Capital Sign	DOT 6

Table of Convenient Cursor Commands

Description	Braille Sign	Braille Dot Positions
PC Cursor	P	DOTS 1-2-3-4
JAWS Cursor	J	DOTS 2-4-5
Route Braille to Active Cursor	R	DOTS 1-2-3-5

Table of Convenient Braille Commands

Description	Braille Sign	Braille Dot Positions
Toggle Active Cursor Follows Braille Cursor	T	DOTS 2-3-4-5
Braille Toggle Mode (Line, Structured, Speech History, Attributes)	M	DOTS 1-3-4

Braille Commands

These commands primarily change settings for your Focus display. They are key combinations with the **SPACEBAR**, referred to as chord commands. Use the **SPACEBAR** like other modifiers (**SHIFT**, **CTRL**, **ALT**, etc.). Press **SPACEBAR** first, hold it down, and then press the other key or keys that are part of the command. These commands all change the settings used to format, translate, or present information on your display.

Note: For your convenience, we have provided both the braille signs for each command and the dot pattern equivalents. If there is no braille sign corresponding to the dot patterns, the dot patterns are listed in both columns. Use computer braille for numbers noted in the Braille Sign column.

Table of Braille Commands

Description	Braille Sign	Braille Dot Positions
Top of Window	L CHORD	DOTS 1-2-3 CHORD
Bottom of Window	DOTS 4-5-6 CHORD	DOTS 4-5-6 CHORD

Description	Braille Sign	Braille Dot Positions
Adjust Braille Verbosity	B CHORD	DOTS 1-2 CHORD
Grade 2 Expand Current Word	T CHORD	DOTS 2-3-4-5 CHORD
Grade 2 Translation	G CHORD	DOTS 1-2-4-5 CHORD
Toggle Characters and Attributes	CH Sign CHORD	DOTS 1-6 CHORD
Toggle Marking	M CHORD	DOTS 1-3-4 CHORD
Toggle 8 Pixels per Space	P CHORD	DOTS 1-2-3-4 CHORD
Toggle 8/6 Dot Braille	8 CHORD	DOTS 2-3-6 CHORD
Color Marking Assign	C CHORD	DOTS 1-4 CHORD
Change Cursor Shape	SH Sign CHORD	DOTS 1-4-6 CHORD
Restrict Braille Cursor	R CHORD	DOTS 1-2-3-5 CHORD

Windows Commands

Windows commands follow a similar convention. Many Windows commands use **CTRL**, **ALT**, or **SHIFT** as part of the command. On the Focus, the **LEFT SHIFT** key is used in these commands. The Windows keyboard command to copy selected text to the clipboard is **CTRL+C**, so the Focus command is **LEFT SHIFT+C** (**LEFT SHIFT+DOTS 1-4**).

The same letter assignments that are used with Windows commands are used for the equivalent Focus commands to make it as easy as possible to learn to use the Focus displays or to learn Windows.

All Windows commands use the **LEFT SHIFT** key as part of the command.

Table of Navigation and Editing Commands

Description	Braille Sign	Braille Dot Patterns
ALT+TAB	LEFT SHIFT+DOTS 4-5	LEFT SHIFT+DOTS 4-5
Paste from Clipboard	LEFT SHIFT+V	LEFT SHIFT+DOTS 1-2-3-6
Copy to Clipboard	LEFT SHIFT+C	LEFT SHIFT+DOTS 1-4
Cut to Clipboard	LEFT SHIFT+X	LEFT SHIFT+DOTS 1-3-4-6
Undo	LEFT SHIFT+Z	LEFT SHIFT+DOTS 1-3-5-6
Delete	LEFT SHIFT+D	LEFT SHIFT+DOTS 1-4-5

Table of Selection Commands

Description	Braille Sign	Braille Dot Patterns
Select Next Character	LEFT SHIFT+DOT 6	LEFT SHIFT+DOT 6
Select Prior Character	LEFT SHIFT+DOT 3	LEFT SHIFT+DOT 3

Description	Braille Sign	Braille Dot Patterns
Select Next Line	LEFT SHIFT+DOT 4	LEFT SHIFT+DOT 4
Select Prior Line	LEFT SHIFT+DOT 1	LEFT SHIFT+DOT 1
Select to End of Line	LEFT SHIFT+DOT 5	LEFT SHIFT+DOT 5
Select from Start of Line	LEFT SHIFT+DOT 2	LEFT SHIFT+DOT 2
Select from Top	LEFT SHIFT+L	LEFT SHIFT+ DOTS 1-2-3
Select to Bottom	LEFT SHIFT+DOTS 4-5-6	LEFT SHIFT+ DOTS 4-5-6
Select Next Screen	LEFT SHIFT+DOTS 4-6	LEFT SHIFT+DOTS 4-6
Select Prior Screen	LEFT SHIFT+K	LEFT SHIFT+DOTS 1-3
Select All	LEFT SHIFT+FOR Sign	LEFT SHIFT+ DOTS 1-2-3-4-5-6
Select a Frame	RIGHT SHIFT+9	RIGHT SHIFT+DOTS 3-5
Select a Heading	RIGHT SHIFT+6	RIGHT SHIFT+DOTS 2-3-5
Select a Link	RIGHT SHIFT+7	RIGHT SHIFT+DOTS 2-3-5-6

Selecting with the Cursor Routing Buttons

To select with the cursor routing buttons, press and hold down the **LEFT SHIFT**, then press the cursor routing button above the text where you want to begin the selection. Release both keys. Move to where you want to end the selection, and press the **LEFT SHIFT** plus the cursor routing button at that location. Use any navigation commands to move from the beginning point to the end point of the text you are selecting, even the Whiz Wheels, but if the window containing the text scrolls, this affects the information that is selected.

JAWS Commands

These commands are easy to learn if you are familiar with JAWS. If you are just beginning to learn your Focus display and JAWS, these commands should help you learn JAWS keyboard commands, as well.

The **RIGHT SHIFT** key on your Focus display corresponds to the **INSERT** key on the computer keyboard. The JAWS keyboard command to make the JAWS window active is **INSERT+J**, so the corresponding Focus command is **RIGHT SHIFT+J** (**RIGHT SHIFT+DOTS 2-4-5**).

Many JAWS keyboard commands use **INSERT** together with the function keys, **F1** through **F12**. For keyboard commands that use **INSERT+F1** through **F9**, press and hold down the **RIGHT SHIFT** on the Focus and press the computer braille number of the function key. For example, the JAWS keyboard command for screen sensitive help is **INSERT+F1**, so the Focus command is **RIGHT SHIFT+1** (**RIGHT SHIFT+DOT 2**). All JAWS commands use the **RIGHT SHIFT** key as part of the command.

Table of General Commands

Description	Braille Sign	Braille Dot Patterns
Screen Sensitive Help	RIGHT SHIFT+1	RIGHT SHIFT+DOT 2
JAWS Window	RIGHT SHIFT+J	RIGHT SHIFT+DOTS 2-4-5

Description	Braille Sign	Braille Dot Patterns
Adjust JAWS Verbosity	RIGHT SHIFT+V	RIGHT SHIFT+DOTS 1-2-3-6
Open Task List	RIGHT SHIFT+0	RIGHT SHIFT+DOTS 3-5-6
List System Tray Icons	RIGHT SHIFT+K	RIGHT SHIFT+DOTS 1-3
Refresh Screen	RIGHT SHIFT+Z	RIGHT SHIFT+DOTS 1-3-5-6
Say Font	RIGHT SHIFT+F	RIGHT SHIFT+DOTS 1-2-4
Windows Keys Help	RIGHT SHIFT+W	RIGHT SHIFT+DOTS 2-4-5-6
Read Current Window	RIGHT SHIFT+B	RIGHT SHIFT+DOTS 1-2
Default Button in Dialog	RIGHT SHIFT+E	RIGHT SHIFT+DOTS 1-5
Shut Down JAWS	RIGHT SHIFT+4	RIGHT SHIFT+DOTS 2-5-6
Select a Synthesizer	RIGHT SHIFT+S	RIGHT SHIFT+DOTS 2-3-4

Table of Cursor Functions

Description	Braille Sign	Braille Dot Patterns
Route JAWS to PC	RIGHT SHIFT+DOTS 3-6 (MINUS Sign)	RIGHT SHIFT+DOTS 3-6
Route PC to JAWS	RIGHT SHIFT+ING Sign (PLUS Sign)	RIGHT SHIFT+DOTS 3-4-6

Table of Utility Functions

Description	Braille Sign	Braille Dot Patterns
Run JAWS Manager	RIGHT SHIFT+2	RIGHT SHIFT+DOTS 2-3
Set Frame Top Left	RIGHT SHIFT+OW Sign	RIGHT SHIFT+DOTS 2-4-6
Set Frame Bottom Right	RIGHT SHIFT+ER Sign	RIGHT SHIFT+DOTS 1-2-4-5-6
Graphics Labeler	RIGHT SHIFT+G	RIGHT SHIFT+DOTS 1-2-4-5
JAWS Find	RIGHT SHIFT+F CHORD	RIGHT SHIFT+DOTS 1-2-4 CHORD
JAWS Find Next	RIGHT SHIFT+ DOTS 2-5	RIGHT SHIFT+DOTS 2-5

Environmental Considerations

Storage

Temperature:　　　0° to 60° C (0 to 140 F)

Humidity:　　　　80% RH

Operating

Temperature:　　　5° to 40° C (41 to 104 F)

Humidity:　　　　60% RH non-condensing

Diagnostics Mode

The Focus braille displays have built-in diagnostic tests for the cursor routing buttons, braille display, Whiz Wheels, braille keys, panning buttons, panning rockers, and selector Buttons.

Before entering Diagnostics Mode, disconnect the Focus from your computer.

Entering and Exiting Diagnostics Mode

Simultaneously, press the cursor routing and Navrow buttons farthest to the left while connecting the display to your computer. The text, "press cr key/wheel/panel keys," is displayed to indicate that Diagnostics Mode has been entered.

Disconnect and then reconnect the USB cable to exit Diagnostics Mode.

Routing and Navrow Button Test

The routing and Navrow button test ensures that each of the cursor routing and Navrow buttons on the braille display work properly. Press any cursor routing button to activate DOTS 5-6-7-8 in the cell below the button. Press any Navrow button to activate DOTS 1-2-3-4 of the corresponding braille cell.

Display Test/Clean

It is necessary to disconnect the Focus 40 and 80 from your computer before beginning this test. The display test is used to ensure that each pin on the braille display can be activated. The display test also allows you to clean the braille display. Connect the USB cable while pressing the rightmost cursor routing and Navrow buttons simultaneously. This action causes all cells to be activated for cleaning. Use a soft cloth moistened with isopropyl alcohol. Do not use any other substance to clean the cells.

While the Focus is in this mode, pressing the rightmost cursor routing button deactivates all of the cells. Pressing the rightmost Navrow button reactivates all cells.

Pressing the Navrow button immediately to the left of the rightmost Navrow button causes the cells to toggle up and down. To stop this action, press either the rightmost cursor routing or Navrow button.

Pressing the cursor routing button immediately to the left of the rightmost cursor routing button results in a different pattern of cell activation. As above, press either the rightmost cursor routing or Navrow button to stop this action.

Key and Controls Test

The key and controls test ensures that each of the keys, controls, and Whiz Wheels operate properly. You can begin the key test after entering Diagnostics Mode by pressing any of the keys or controls listed in the table below. The braille display reflects each key that is pressed. Refer to the table *(see next page)* for the exact dot position for each of the keys. Press each of the keys and controls and verify that the appropriate response is displayed.

Keys	Displays
DOT 1	1
DOT 2	2
DOT 3	3
DOT 4	4
DOT 5	5
DOT 6	6
DOT 7	7
DOT 8	8
LEFT SHIFT	kls

Keys	Displays
RIGHT SHIFT	krs
SPACEBAR	ksp
LEFT PANNING BUTTON	pl
RIGHT PANNING BUTTON	pr
LEFT SELECTOR BUTTON	sl
RIGHT SELECTOR BUTTON	sr
LEFT WHIZ WHEEL SWITCH	wls
LEFT WHIZ WHEEL UP	wlu
RIGHT WHIZ WHEEL SWITCH	wrs
RIGHT WHIZ WHEEL UP	wru
RIGHT WHIZ WHEEL DOWN	wrd
LEFT ROCKER SWITCH UP	rlu
LEFT ROCKER SWITCH DOWN	rld
RIGHT ROCKER SWITCH UP	rru
RIGHT ROCKER SWITCH DOWN	rrd
LEFT PANNING ROCKER UP	blu
LEFT PANNING ROCKER DOWN	bld
RIGHT PANNING ROCKER UP	bru
RIGHT PANNING ROCKER DOWN	brd