# RCEVH BBC MICRO SCREEN READER QUICK REFERENCE

**Enter Screen-reading:** **TAB (or CTRL+A)**
**Unlock settings:** **# (see Appendix A)**
**Exit Screen-Reading:** **RETURN (or ESCAPE):**

**LOADING: SHIFT+BREAK or CHAIN "SCprogS" from disk or load the sideways RAM file:**
BBC Micro Model B 32K - ***SCramS** *[or try ***SRLOAD SCramS 8000 15**]* – then CTRL+BREAK
BBC Micro B+ or Master - ***SRLOAD SCramS 8000 W Q** – then CTRL+BREAK

**In Screen Reading mode: Moving Around the Screen**

"**T**" : Top of the page.
"**B**" : Bottom of the page.
"**U**" : Up a line.
"**D**" : Down a line.
"**S**" : Start of line.
"**E**" : End of the line.
"**H**" : Home position, i.e. where you started from.
"**L**" : Read rest of line and go to start of next line. NOTE: when you move from line to line then a two tone sound will be given. The first tone is the "Home" line and the second tone is the current line.
"**,**" : back a character.
"**.**" : right a character.
"**C**" : speak character.

**NOTE:** When you move by character, every move gives a beep. Very high for a control character or graphics, high for a capital letter, medium for lower case letters and punctuation, low for a space.

"**W**" : forward a word (with word spoken).
"**R**" : forward a word (no speech).
"**Q**" : back a word (no speech). Use **U**,**E**,**Q** to go back a word over a line boundary.

**Unlocked Settings:**

"**K**": Keyboard echo - speak keyboard input on/off (set OFF for action audio-games)
"**[SPACE BAR]**": SPACE characters spoken on/off.
"**P**": Punctuation spoken on/off.
"**I**": Speak individual characters (on) or whole words (off) (if K or O are on).
"**F**": Filter out MODE7 TELETEXT special characters if on (only use if have to as slows things down).
"**O**" speak text OUTPUT from program on/off (set ON for action audio-games).

Control U
This command enables you to set the function of pressing the UP and DOWN arrow keys. They can be set to speak nothing, the character which is moved to, the word which is moved to, or the whole line which is moved to.

**HINTS:** For programming in BASIC try "O" on and "K" off. For most screen based programs have "O" off and "K" on. Then to read the information on the screen you can press the TAB key and use "L", "W" or "C".

**CTRL-O (mute speech synth)**

# Documentation for SCREEN READER

BBC B with disc drive
Documentation version 2
Disc version 2 [1987]

**RESEARCH CENTRE FOR THE EDUCATION OF THE VISUALLY HANDICAPPED**
**Faculty of Education University of Birmingham**

**CONTENTS**



**TARGET AUDIENCE**

The blind who wish to use or access the information on the computer screen using synthetic speech.

**INTRODUCTION**

Essentially this program acts as a "front end" to the BBC micro. It will enable all keys pressed to be spoken as characters, as whole words, or not at all. It will also allow a user to move a "speech cursor" around to read the text anywhere on the computer screen.

This program can be used so that a blind user can program in BASIC using the synthetic speech to check what they have entered. Alternatively, it can be used when running other people's BASIC programs. The program will also work with many of the commercial programs which are currently available on ROM. The basic version of ScreenReader does, however, take up some of the computer's memory which prevents it from working with certain programs. There is a version which runs in Sideways RAM (see Appendix C below) which does not take up any memory from existing programs. If you wish to exploit this program fully then Sideways RAM is a useful addition to your computer.

**NOTES:**

1. This program has also been tested with the Acorn 6502, Acorn Z80 and Torch Z80 2nd processors.

2. This program is very flexible and allows its mode of operation to be configured for a suitable speech synthesiser and for particular programs. This does mean that some of the facilities are not trivial to use and may take a little time to get used to.

3. A version of this program which works with the WINDOW display is also available.

4. Specific versions of this program are also available for the word processor WORDWISE(-PLUS) and the spread-sheet INTER-SHEET.

5. Updates from the previous version of ScreenReader can be found in the file UPDATE which is on the ScreenReader disc.

Any comments/criticisms/suggestions on this package are most welcome and should be addressed to:

**Research Centre for the Education of the Visually Handicapped,**
**Selly Wick House,**
**59 Selly Wick Road,**
**Birmingham, B29 7JE**

We hope this disc is useful.

NOTE: The programs on this disc will not work without a disc drive which is thus ESSENTIAL.

The materials in this package should NOT be distributed and all enquiries concerning them should be referred to the Research Centre.

This program is based on some work which was done by Alan Hadley and Peter Jones of St. Dunstans.

**USING THE DISC**

1. Switch on the computer, monitor and disc drive(s).
2. Insert the appropriate disc into the disc drive and close the drive door.
3. Press the <SHIFT> key then, while still depressing the <SHIFT> key, press the <BREAK> key. Release the <BREAK> key, and then release the <SHIFT> key.
4. This sequence will load in the ScreenReader code from the disc and will take you into BASIC. The program is now loaded and you can start using BASIC or any other program.

**GETTING TO GRIPS WITH THE PROGRAM**

This section will take you through the first stages of using the ScreenReader program. There are lots of beeps and buzzes in this program. Don't worry if you find them confusing at the start - they are intended to give some kind of extra information. Nor should you worry if you find the speech difficult to understand at first. That comes with time and you are going to come across some commands which will make reading the information with synthetic speech easier. This section does not deal with all of the features of this program. It is just intended to get you started. You are referred to the Appendices for detailed descriptions of the facilities available.

**NOTES:**
1. Most of the commands have been put onto keys so that some kind of sense is made of the character, eg. "T" for top of screen.
2. When you press "DELETE" the computer will say DELETE followed by the character to the left of the cursor. In most cases this will be what you have deleted. (Some programs use the delete key for other purposes which ScreenReader will not be aware of.)

**TO BEGIN:**
Start up the disc as in "Using the program" above. ScreenReader is now loaded into the computer. What is needed now is some text on the screen to practice using ScreenReader with. There is a program on the disc which will let you do this. It is called DEMO. Type CHAIN "DEMO" and then press the RETURN key to get the demonstration program into the computer and run it.

What the program DEMO does is to put some text onto the top few lines and onto the bottom line of the screen. It also allows you to type in text a line at a time which appears on line seven of the screen. The first thing to do is to practice ScreenReading. Pressing the **TAB key** will take you out of whatever program you are running and into ScreenReading. Do that now - press the TAB key. The synthesiser will say ScreenReading. You will also hear a beep. That beep gives you some indication as to where you are on the screen (by it's pitch).

What you can do now is to move a "speech cursor" around the screen and send text at the speech cursor

to the speech synthesiser. Press the "T" (for top) key. You will hear a two-tone beep. The first tone gives an indication of the line where you first came into ScreenReader, the second beep gives an indication of the current line (which is the top line of the screen). Now pressing the "L" key will read out the current line of text. Try that now. It should say "This is the top line." It will also give another two-tone beep. This beep happens every time that you move down a line on the screen. Press "L" again and the next line of the screen will be spoken. Keep pressing "L" to work your way down the screen. When you get to the bottom the computer will keep on beeping you to tell you that there is nowhere else to go. So far you have learnt "T" for top of the page and "L" to read a line of text. Extra commands for moving up and down the screen by lines are "U" for up a line, "D" for down a line and "B" for bottom of the screen. Press "T" to go to the top of the screen

The next commands to learn are how to move around the screen a word at a time. Use the commands that you already know to get the speech cursor to one of the lines on the screen containing text. Now press the "W" (for word) key two or three times slowly. You will read the text a word at a time. Now press the "Q" key. This is to the left of the "W" (for word) key and takes you back a word. Practice reading words with "W" and then going back with "Q" and read them again.

**NOTES:**
1. Whereas "W" will read a word and then go onto the next line (if appropriate) "Q" will not go back a word to the previous by lines. (This can be done though. See below in "Some Hints".)
2. When you move by words you get a single beep (unless you go on to the next line). This beep gives you an indication of where you are on the current line.
3. As well as "W" and "Q", the "R" key will also move you by word. It takes you forward a word but does not speak the word.

Now you should be able to move and read by line and by word. Additionally the "C" key will read the character at the speech cursor. The keys "," and "." will move you left by a character and right by a character, but they do not speak what the characters are.

**NOTE:**
All three of these commands cause beeps to occur. The pitch of the beep tells you what kind of a character is under the cursor. At present just notice that a low beep is a space, a middle beep is lower case letters and punctuation, and a high beep is upper case letters.

To exit from ScreenReading and get back to the program DEMO you press **RETURN**. This will be confirmed by the synthesiser saying "EXIT". Any time you want to check what is on the screen you can press TAB to enter ScreenReading, read the information on the screen and then RETURN to DEMO. Now type in two or three words. The computer should echo the characters as you type them.

**NOTE:**
At any time, when you are typing in characters, you can always TAB into ScreenReading and check the screen. The program is currently set up to speak the characters as you type them. This option can be changed so that it speaks characters that go to the screen. The program can also be set up to speak the characters that you type as words (ie. when you press the SPACE BAR or RETURN) or not to speak at all. More details of these features are in Appendix A.

An additional three facilities enable you to access the information which is on the current screen without having to enter ScreenReader. The first two are accessed by the characters CTRL-K and CTRL-L. (To type CTRL-K you hold down the CTRL key which is to the left of the "A" key, then press "K".) CTRL-K will read the text on the current line up to the cursor position. CTRL-L will read all of the text on the current line. The third facility is that the cursor keys will tell you the character or the line which the cursor moves to. This can be particularly useful if you are editing a BASIC program using the COPY keys.

**SOME HINTS**

1. To make sure that your CAPS and SHIFT lock keys are off you can press CAPS-LOCK and then press SHIFT-LOCK twice. To actually check the status of your CAPS and SHIFT lock keys you can use the ScreenReader command "@". See Appendix A below.

2. Once the ScreenReader program is in memory then many programs which are then run will talk. Pressing SHIFT-BREAK to Auto-Boot (ie.start up) a new disc with a program on will lose the ScreenReader code unless the code is in Sideways RAM - see appendix 3 below). In this case you should place the new disc into the machine and type ***EXEC !BOOT.**
3. To go back a word over a line boundary, if you are at the start of a line then the three commands "U", "E", "Q" executed in sequence will take you back to the start of the last word on the previous line.
4. If the TAB key does not enter ScreenReader for a particular program then try using CTRL-A.
5. If you wish to insert a TAB into a program that you are using, try using CTRL-I.

**APPENDIX A - THE COMMANDS AVAILABLE**

These options can be conveniently divided into four main groups.

**(a) Setting Parameters for the Speech**

These parameters control the style of the speech output.

Normally, whilst you are running the program these parameters are all "LOCKED", i.e. you cannot change them. To "UNLOCK" the parameters you must press the "#" (hash) key after having pressed TAB. Note: this UNLOCKing is only operational until you press the RETURN key again.

Available options to change are:

Letter "K".
This will toggle the option to have all the input from the keyboard spoken as it is typed in ScreenReader. (By toggle, it means switching from ON to OFF, or from OFF to ON depending on the current setting.) When keyboard echo is on, a beep will be given to indicate when you type an uppercase letter.

Character " " (ie. space).
This will toggle the option for the space character to be spoken.

Letter "P".
This will toggle the option for punctuation to be spoken.

Letter "I".
This will toggle whether individual characters are spoken as they are typed (assuming "K" or "O" are ON). If this option is off the speech will be in whole words.

Character "|". (Vertical Bar)
This will toggle whether speech is on the RS423 port or the parallel port. (High beep is RS423, low beep is parallel.)

Character "F".
This is an option which enables you to filter the characters on the screen before they are spoken. Some systems like PRESTEL and TELETEXT (CEEFAX and ORACLE) present information in such a way that the screen will not be read properly. This filter will clean up the information so that it is more clearly understood. However, the filtering does slow things down a little and it is best left off unless necessary.

Character "O".
The "O" command complements the "K" command. Whereas "K" echos keys as they are typed, "O" will speak characters as they go to the screen. For most purposes, you will not want both "O" and "K" on at the same time. If you did then characters would be spoken as they are keyed in and as they come up on the screen. For each application you need to find which options are most applicable.

Control W
This command is used to teach ScreenReader which keys are used for cursor movement in specific applications. The user will be asked to press in turn the keys for cursor left, right, up, down and then word left and right. For example this can be used to set the cursor keys to speak with the VIEW word processor. After setting this up the user may wish to save the configuration as a new version of ScreenReader either with the program CONFIG (see Appendix B) or by saving the sideways RAM image (see Appendix C).

Control U
This command enables you to set the function of pressing the UP and DOWN arrow keys. They can be set to speak nothing, the character which is moved to, the word which is moved to, or the whole line which is moved to.

**HINTS:** For programming in BASIC try "O" on and "K" off. For most screen based programs have "O" off and "K" on. Then to read the information on the screen you can press the TAB key and use "L", "W" or "C".

CTRL-L.
This enables you to set whether multiple spaces are compressed or not. The default is that they are.

CTRL-K
This enables you to set whether CTRL-K, CTRL-L, CTRL-O and CTRL-P work when not ScreenReading. The default is that they do work.

NOTE:
When you press either CTRL-K, CTRL-L, "P", " ", "I", "F", "O" or "K" then the computer will tell you whether that option is on or off. Other functions will give more detailed instructions.

**(b) Moving Around the Screen**

These options enable you to move around the screen. They are:

Letter "**T**" : Top of the page.
Letter "**B**" : Bottom of the page.
Letter "**U**" : Up a line.
Letter "**D**" : Down a line.
Letter "**S**" : Start of line.
Letter "**E**" : End of the line.
Letter "**H**" : Home position, i.e. where you started from.
Letter "**L**" : Read rest of line and go to start of next line.
NOTE: when you move from line to line then a two tone sound will be given.
The first tone is the "Home" line and the second tone is the current line.
Letter "**,**" : back a character.
Letter "**.**" : right a character.
Letter "**C**" : speak character.

NOTE:
When you move by character, every move gives a beep. The beep is very high for a control character or graphics, high for a capital letter, medium for lower case letters and punctuation, and low for a space.

Letter "**W**" : forward a word (with word spoken).
Letter "**R**" : forward a word (no speech).
Letter "**Q**" : back a word (no speech).

NOTE:
When you move by word a beep is given to indicate the column. If a two tone beep is given then this indicates that you have gone to the next line.

NOTE:
Three of the above commands speak text as they move. They are: Letter L to speak Line, Letter W to speak Word, Letter C to speak Character.

**(c) Utilities**

These are a variety of options which may prove to be useful. They are:

Letter "A" will speak the ASCII value of the character under the cursor.
Letter "X" will speak the X co-ordinate (column number) of the cursor.
Letter "Y" will speak the Y co-ordinate (row number) of the cursor.
Letter "@" will tell you the status of the CAPS-LOCK and SHIFT-LOCK keys.

CTRL-B can be used to set the Baud Rate for the Speech Synthesiser.
When you press CTRL-B one of three beeps is emitted:
The low beep is 300 baud.
The middle beep is 1200 baud.
The high beep is 9600 baud.

NOTES:
1. The default is 9600 baud.
2. ScreenReader must be UNLOCKed for this option to work.

CTRL-N will speak the name and version number of ScreenReader.

CTRL-P (MIMIC synthesiser only)
This command will turn phonectics on ie. the synthesiser will say "Alpha, Bravo, Charlie" instead of "A B C". This will work either in or out of ScreenReading mode. It is turned off either by Muting the Speech Synthesiser (see below) or when punctuation or commands are read.

Letter "M" will reset the speech synthesiser ie. shut it up or Mute it.
Note: this facility is also available outside of ScreenReading and can be accessed by typing CTRL-O.
(This facility is not available for the NAMAL speech synthesiser.)

CTRL-D
This command enables a user to set up three options for ScreenReader. In turn the user will be asked for the synthesiser being used, the character which is to be used to enter ScreenReading, and the Volume of sound to be used for the Beeps and Buzzes.

Notes:
1. The system must be unlocked for this to work.
2. The TAB key will still be defined on startup (and after BREAK with the sideways RAM version) by *FX219. If this is not required then the user can re-issue the *FX command after initialisation has taken place.

**(d) Getting out of ScreenReader**

These two commands will exit from ScreenReading. They are:

RETURN - this takes you out of ScreenReading and back into whatever you were doing before you entered ScreenReader. The cursor will be returned to its old location before you pressed TAB.

ESCAPE - this is the same as RETURN except that an ESCAPE condition will also occur.

**APPENDIX B - THE PROGRAM CONFIG**

After SHIFT-BREAKing the ScreenReader disc you can permenantly alter the way that the program operates and starts up by running the program CONFIG. This is done by making sure that you are in BASIC and then typing CHAIN"CONFIG" and then press the RETURN key.

This will save the version of ScreenReader which is in memory, with all of it's current settings, to the disc.

**APPENDIX C - SIDEWAYS RAM VERSION**

On the Talking ScreenReader disc is a program called SCramS. This is the sideways RAM version of the ScreenReader program for speech. (The normal version is called SCprogS.) To run the sideways RAM version you must have sideways RAM fitted in your computer or have a 128K Beeb!

On the BBC model B the code is loaded in by typing
*SCramS *[or try *SRLOAD SCramS 8000 15]*

On the 128K B+ and the 128K Master the code is loaded in by typing
*SRLOAD SCramS 8000 W Q

It is then run by pressing CTRL & BREAK. Note: This code will stay in your machine until you overwrite it or until you turn the machine off. If you have battery backed up RAM then the code will stay intact even after the machine has been turned off.

To save the current status of ScreenReader when it is in Sideways RAM then you may just save a copy of the Sideways RAM to disc and use th*at as a particular version of ScreenReader. You may need a program to do this, but for the 128K Beebs you can use the SRSAVE command.

*[ try *SAVE SCramS2 8000 BFFF 8000 …. Or try…. *SRSAVE SCramS2 8000 BFFF 15 ]*

**Appendix D**

The characters 208-217 have been defined to have the following actions
on input to the computer.
240 - Mute (as in ScreenReading)
241 - read character to left of cursor
242 - read character at cursor
243 - read character to right of cursor
244 - read word to left of cursor
245 - read word at of cursor
246 - read word to right of cursor
247 - read previous line
248 - read current line
249 - read next line
To use this facility you must define the function keys to be these
characters. (Users with a BBC MASTER can define the numeric keypad at the
side of the computer to use these keys.)

To define the function keys you use:

```
    *FX225,240   (this define f0 to f9 to have the functions above)
or  *FX226,240   (this defines SHIFT + f0 to f9)
or  *FX227,240   (this define CTRL + f0 to f9)
or  *FX228,240   (this defines SHIFT+CTRL + f0 to f9)
or  *FX238,240   (this define the keys 0-9 on the MASTER numeric keypad)
```

These keys are NOT defined for you. It is for you to decide which key combinations, if any, to use for each particular application.

**Appendix E**

The latest feature is to teach ScreenReader (sideways RAM version only) what to say for particular key depressions. ScreenReader can be taught a new character by pressing **CTRL-T** (when ScreenReading and when the system is unlocked). You will then be prompted for the character to be defined. Press the character. You will then be asked what you want the computer to say when you press that key. Type in up to 15 characters followed by return. To check what has been input, leave ScreenReading and press the newly defined key. Note: if this is being used to make function keys talk then you should teach the program about the function keys when you are in the part of the program in which the function keys are being used. This is because the function keys can change their values during a program. Once defined you can then save this "SIDEWAYS RAM image" for use the next time that you use that particular program.

**Changes to ScreenReader and Talking WORDWISE - trial version.** ***(March 1987).***

Changes to ScreenReader and Talking WORDWISE - trial version.

1. All of the functions of WORDWISE will now talk. Left and right cursor speak the character that you go to. Up and down cursor will speak the character, word or line that you go to (see below). In addition moving left and right by a word will speak the word that you move to.

2. The program can be internally set for speech synthesiser (VOTRAX should now shut up), the interrupt character (ie. the one that takes you into ScreenReading - default CTRL-A), and the volume of the sound. This is done by typing CTRl-D (for device) when ScreenReading. The system must be UNLOCKED for this to work. (Note: the TAB key will still be redefined to the new interrupt character with *FX 219)

3. ScreenReader (not TALKING WORDWISE) can be taught which keys are used for cursor movements. When in ScreenReading and with the system UNLOCKED type CTRL-W. You will then be prompted for the characters which are used for left and right cursor, up and down cursor, left and right word. This means that the program can be configured for editors and systems other than WORDWISE. (Note: some character must be entered for each of the cursor moves. If, say, word moves are not possible then left and right cursor should be pressed again, or SHIFT-LEFT and SHIFT-RIGHT cursor.)

4. The action of choosing CURSOR UP and DOWN can be set with CTRL-U when ScreenReading. This will enable you to select whether ScreenReader or Talking WORDWISE will speak the character or word or line or not at all when the cursor moves up/down a line.

5. The characters 208-217 have been defined to have the following actions
on input to the computer.
  240 - Mute (as in ScreenReading)
  241 - read character to left of cursor
  242 - read character at cursor
  243 - read character to right of cursor
  244 - read word to left of cursor
  245 - read word at of cursor
  246 - read word to right of cursor
  247 - read previous line
  248 - read current line
  249 - read next line

To use this facility you must define the function keys to be these characters. (Users with a BBC MASTER can define the numeric keypad at the side of the computer to use these keys.)

To define the function keys you use:
    *FX225,240  (this define f0 to f9 to have the functions above)
or  *FX226,240  (this defines SHIFT + f0 to f9)
or  *FX227,240  (this define CTRL + f0 to f9)
or  *FX228,240  (this defines SHIFT+CTRL + f0 to f9)
or  *FX238,240  (this define the keys 0-9 on the MASTER numeric keypad)

These keys are NOT defines for you. It is for you to decide which key combinations, if any, to use for each particular application.

6. Upper case characters will now beep on input whatever speech settings are. (This does not seem to work at present when COPYing the characters with the CURSOR keys.)

Notes: Items 3 and 5 should let you use Screenreader with BASIC editors such as the BASIC editor from ACORN.

7. The latest feature is to teach ScreenReader (sideways RAM version only) what to say for particular key depressions. ScreenReader can be taught a new character by pressing CTRL-T (when ScreenReading and when the system is unlocked). You will then be prompted for the character to be defined. Press the character. You will then be asked what you want the computer to say when you press that key. Type in up to 15 characters followed by return. To check what has been input, leave ScreenReading and press the key.

Note: if this is being used to make function keys talk then you should teach the program about the function keys when you are in the part of the program in which the function keys are being used. This is becuse the function keys can change their values during a program. Once defined you can then save this "SIDEWAYS RAM image" for use the next time that you use that particular program.

8. When working normally (ie. when not ScreenReading) two new commands have been added.
CTRL-O will shut up the speech synthesiser.
CTRL-P will turn Phonetics on. (This will only work for the MIMIC speech synthesiser.) Phonetics is turned off by either a CTRL-O (see above), or when the synthesiser speaks punctuation and commands. (CTRL-P will also work when ScreenReading.)

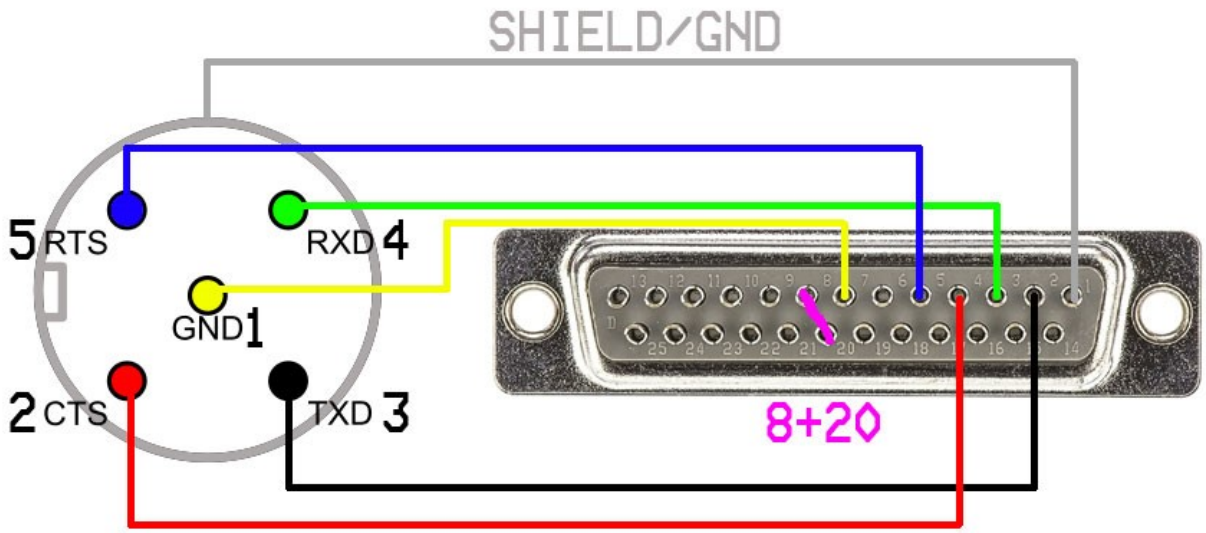
**RCEVH Screen Reader v2 Disk Catalogue contents**

```
>*CAT
Talk.s Mar87 (87)
Drive 0          Option 3 (EXEC)
Dir. :0.$        Lib. :0.$

   !BOOT            Config
   Demo             NewBaud
   SCprogS          SCramS
   Update

  S.Reader
```

>*TYPE Update *(or S.Reader to view – hold CTRL+SHIFT to pause the fast scrolling instructions).*

Most files with have an “L” after them to denote that they are LOCKED from being over-written.
Use *ACCESS *filename* (RETURN) to unlock them. Use *ACCESS *filename* (RETURN) to relock.

## VOTRAX (set to 9600 BAUD – DIP switch pin 8 down) to BBC Micro/Master RS423 via a custom cable:




| Pin (25 P) | Votrax (RS232) | | BBC | Pin (RS423) |
|---|---|---|---|---|
| 1 | 0V (Ground) | | GND (Ground) | SHIELD* |
| 2 | TD | ---------- | TD (Data out) | 3 |
| 3 | RD | ---------- | RD | 4 |
| 4 | CTS | ---------- | CTS | 2 |
| 5 | RTS | ---------- | RTS | 5 |
| 7 | GND | ---------- | GND | 1* |
| 8+20 | DCD+DTR | BRIDGED | N/A | N/A |

*Votrax GND pins 1+7 and bridged internally

Use a custom 5-pin RS423 to 25-pin RS232 cable as specified above. The RS423 BBC Micro/Master plug only works one way up, but won't cause damage being connected upside down. Note: **Only plug/unplug cables with computer and Votrax power off.**

**Sideways RAM** boards vary. I tested an unbranded single ROM-socket sized kit from RetroClinic. This was plugged into the right-most empty ROM socket of a BBC Micro (issue 7 PCB). This RAM kit had a single flying lead to connect to IC77 pin 8 (bottom-right pin). With BBC Micro, Votrax and Disk-drive powered on and the screen-reader disk inserted, type ***SRLOAD SCramS 8000 15*** **(RETURN)**, and when completed, reset the computer with CTRL+BREAK. Typing ***ROMS** should list the RCEVH screen reader as a ROM.

**Basic testing:** For testing the Votrax without the screen-reader try ***FX5,2** (use serial printer) and **CTRL+B** to send all screen text to the Votrax. **CTRL+C** should turn it off. Alternatively, use ***FX3,5** to send output to the screen, and Votrax. ***FX3,4** for back to just the screen.

This preservation work was undertaken by **OneSwitch.org.uk** as part of the Accessible Gaming Museum project. Many thanks to members of the Stardot Forums (especially so Colin McDougall, Michael Ascroft and "Pernod"). Thanks to Andoni Graham on Facebook, Colin Howard from TAVIP and Mark Haysman at Retroclinic. See more at https://www.oneswitch.org.uk/art.php?id=386 -

**November 2025 – barrie.ellis@oneswitch.org.uk**