

TAPE OPERATING SYSTEM VERSION 2 - JUNE 1982

Enclosed is a new ROM memory integrated circuit for your ZX99 Tape Control Subsystem, containing extra facilities and improvements as summarized below. Also included is a revised copy of the ZX99 User Manual. This has been updated to reflect the changes to the ROM, and also incorporates minor enhancements of the text.

SUMMARY OF MODIFICATIONS

1) Printer Delays after CR and LF

Many printers cannot handle continuous input. They collect incoming data in an internal buffer until they have a complete line ready for printing, but once they start to print they cannot accept any further input until the operation is complete. To cater for this, two new 'magic numbers' have been introduced for the 'Y' parameter. These provide automatic insertion of user-selectable delays after all Carriage Return (CR) and Line Feed (LF) ASCII control characters, to allow time for printing to take place.

Other printer control codes requiring delays, such as Form Feed, can be dealt with by use of PAUSE statements within your program, as described in a new section added to the end of Chapter 7 in the new User Manual.

2) Program Listing Line Width

Program listings now use a maximum line length of 64 characters, automatically splitting longer program statements into several print lines. Previously, the print line length was unrestricted, causing problems with very long statements on printers that had no means of handling line overflow.

3) Graphics Characters on Program Listings

Since some Graphics characters are converted into ASCII printer control codes (as per Appendix E), their appearance in a program listing could cause unwanted side effects. All Graphics characters and other characters that produce ASCII control codes are now replaced by blanks. This also allows you to fill in the ZX81 Graphics symbols on your listing by hand, if you wish. (Block Print is not affected by this, and still converts all characters as defined in Appendix E.)

4) < and > Symbols

With the original ROM these symbols printed the wrong way round, and have now been corrected.

5) End-of-File Time-Out Test

The period used for testing for end-of-file is 15 seconds, not 20 as

originally stated in the manual. The manual has been corrected.

6) Software Version Number

A means of displaying the Version number of the software in your ZX99 ROM is now included. This is given in Appendix G.

7) Excessive Switching Currents

There are a few cassette recorders that require such a heavy switching current that they can cause permanent damage to the relays in the ZX99. These units are not suitable for use with the ZX99. A warning has been added to Chapter 1 in the User Manual.

8) End-of-File After Tape Copy

The automatic Tape Copy function now writes a twenty second blank trailer on the output tapes when copying is ended.

9) Spurious 'Break'

Holding down the NEWLINE key can no longer cause a premature 'Break' action (Report Code 'D'), and the warning about this has been removed from Appendix C.

INSTALLATION OF NEW ROM

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*****
*** READ THESE INSTRUCTIONS RIGHT THROUGH BEFORE ***
*** COMMENCING REPLACEMENT ***
*****
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The ROM is packed with its pins inserted in a special conductive plastic foam. This protects the ROM against shocks from static electric charges that can build up on many materials, including clothing. DO NOT remove the ROM from the protective foam yet.

Disconnect all cables, the ZXS1 and RAM pack from your ZX99 and lie it on its back. Remove the five screws and lift off the front half of the case.

Ease the printed circuit boards out of the back half of the case. Note that there are two boards joined by short jumper cables. The main board lies flat across the back half of the case, but the second (smaller) board is at right angles to the main board and fits into slots in the rear of the case, so care is needed to withdraw it from these slots.

Turn the main board component side up, taking care not to bend the Light Emitting Diodes (LEDs) on the other side. The ROM is the large integrated circuit near the centre of the board. It is the only one that is removable - the small I.C.s are soldered in.

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Before attempting to remove the ROM, observe its orientation to make sure you insert the new ROM the right way round. If you are holding the main board with its lower edge towards you, you will see a small notch in the left hand end of the ROM. Also, at the left hand end of the ROM's lower row of 'legs' you will see a small '!' printed on the board (just above the 'e' of the word 'Interact'). The notch in the ROM must go at the end that is marked with the '!'. Inserting a ROM the wrong way round can cause permanent damage. Also have a look at how the ROM's legs fit into the carrier so that you insert the new one correctly.

To remove the ROM you must proceed very gently. Do not try to pull it straight out with your fingers as you will almost certainly bend the legs, or even break them off in the carrier. Use a screwdriver to lever up one end a little, then the other end. Make sure that you are only attempting to lift the ROM, and not the carrier into which it is plugged. Repeat levering it up first one end then the other until it comes free.

Insert the old ROM into the reverse side of the protective foam that is holding the new ROM. You can tell which ROM is which as the new one has been marked with a '2' on the copyright label.

Now take the new ROM out of the protective foam. Hold it by the body and try to avoid touching the legs as far as possible. You may need to bend its legs inwards slightly to get them to line up with the recesses in the socket. To do this hold the ROM with its top face towards you so that the legs are all pointing away from you in two horizontal rows. Now hold the ROM down on the table so that the lower row of legs are flat against the table. Apply firm downward pressure and rock the ROM away from you slightly so that the legs are bent inwards a little. Use sufficient downward pressure so that the legs bend at the top, not halfway down where they get narrower. Repeat the process for the other set of legs.

Insert the ROM into the carrier on the board, making sure that the end with the notch goes nearest to the '!' marked on the board. Check again that the ROM is the right way round, and is pressed fully home into the carrier.

Fit the boards back into the rear half of the case, making sure that the small board slides all the way into the guide slots.

Fit the front half of the case, checking that the LEDs have not been bent and line up with the holes in the case. Replace the five screws.

Now test your ZX99 by reconnecting it to the ZXS1 and RAM pack. If all looks normal after switching on, try a USB command to check that the ZX99 is working. For example, light the LED for Input 1 by entering:

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LET A=USR 8195
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As a final check that you have indeed inserted the new ROM, display the version number as described in Appendix G of the new manual.

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When you have completed the exercise, please return the old ROM, safely encased in the protective foam to:

DATA-ASSETTE,
44, Shroton Street,
London NW1,
England.