

## **Lear Siegler ADM-3A add "lower case option"**

written by Sergio Gervasini for ESOCOP - The European Society for Computer Preservation  
<http://www.esocop.org>

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<http://www.esocop.org/gnu/gnu-1.3-license.txt>

## References

Lear Siegler ADM-3A wiki:  
<https://en.wikipedia.org/wiki/ADM-3A>

Character ROM images:  
<https://www.esocop.org/docs/LearSiegler2513ROM.zip>

ADM-3A Lower Case Option "Clone" (at the moment no more active):  
<http://juliepalooza.8m.com/sl/adm3a-2.htm>

Signetics 2513 datasheet:  
<https://www.applefritter.com/files/signetics2513.pdf>

## Introduction

The Lear Siegler ADM-3 terminal originally did not have lower case capabilities, the ADM-3A, however, had this capability as an option and was able to display both lower and upper case.

The motherboard already included the sockets for expansion chips, they were a ROM character generator for lowercase letters and two additional rams 2102-1.

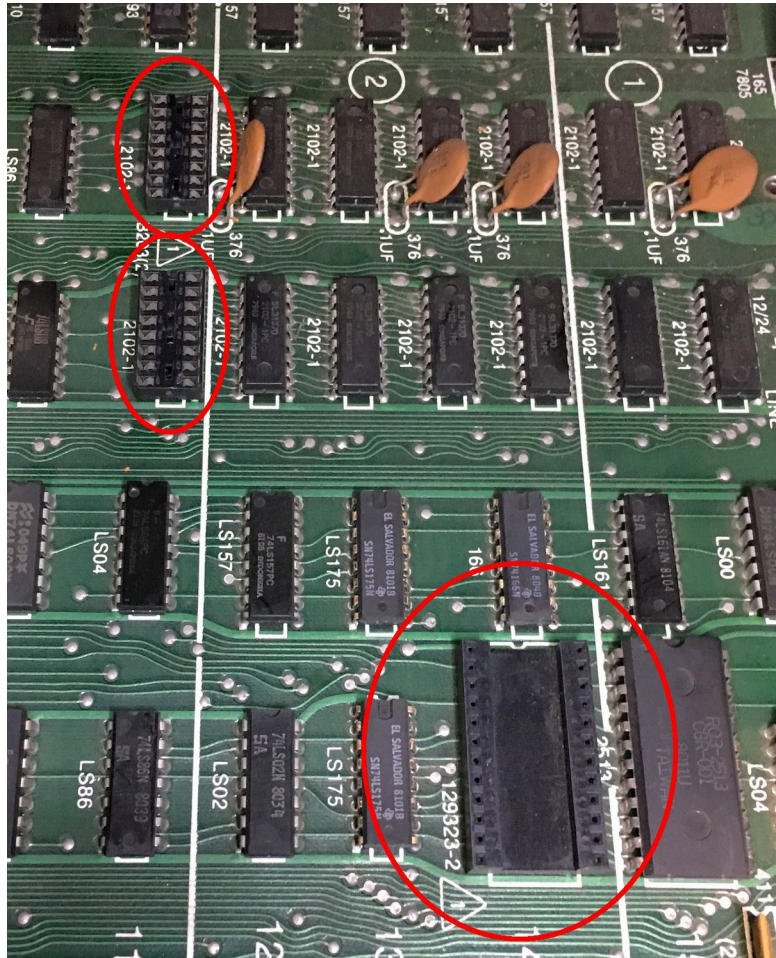
This was a fairly expensive option at that time, due to the cost of the ram, for this reason the standard version of the terminal was able to display only the uppercase characters.

Today it is no longer possible to find the specific character generator on the market, but luckily the image of the rom has been saved and, with a suitable adapter, an eprom 2716 can be used as a replacement.

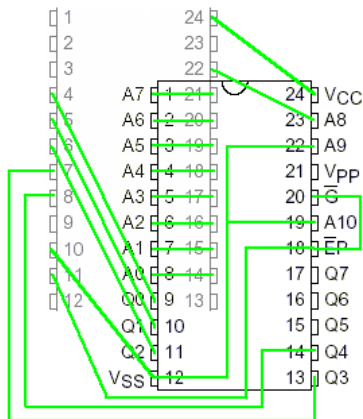
## Visual Check

Check the mainboard to identify the sockets: the bigger one for the character generator, the smallest two for the additional ram.

If the chips are already present you are lucky: the option is already installed, check only the switch (see the last section of this document)!

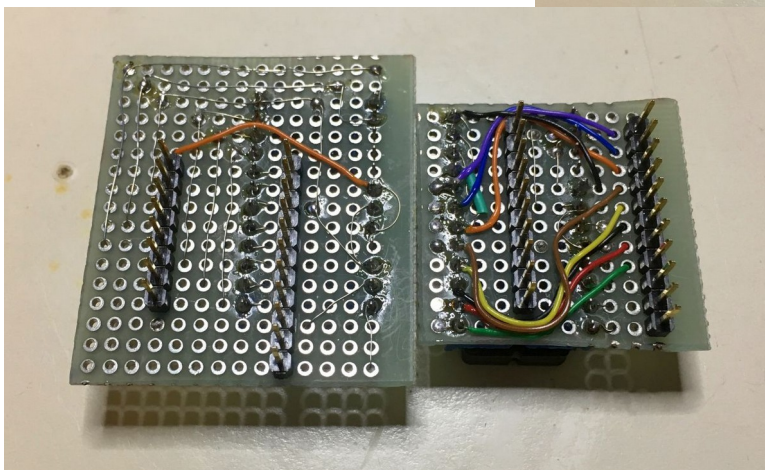
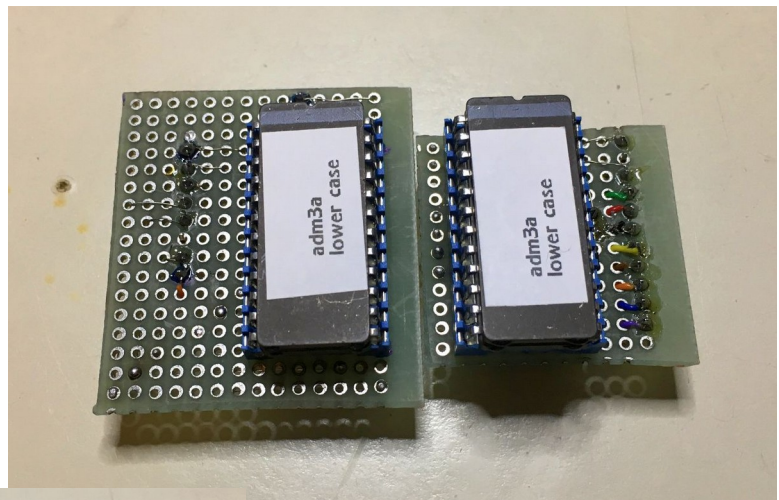


## Build the adapter



The adapter is built on a prototype board and provides a fairly complex pin connection (in the schematic the gray pins are on the motherboard, in black those on the socket for the eeprom 2716).

Note: I have built two adapters, the little one has been the first experiment, and it was too complex, the bigger one is easier to build and avoid errors. The schematic is related to the big one.



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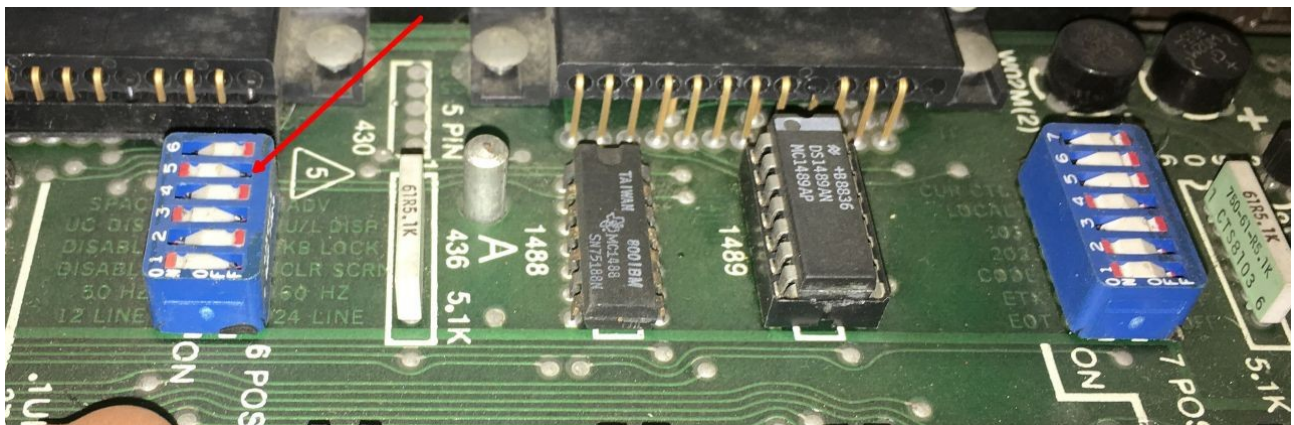


## Install and test

After burning the eeprom with the "lower case image" I installed it on the adapter and then installed the adapter itself on the terminal motherboard. At last I added also the 2 rams 2102-1.

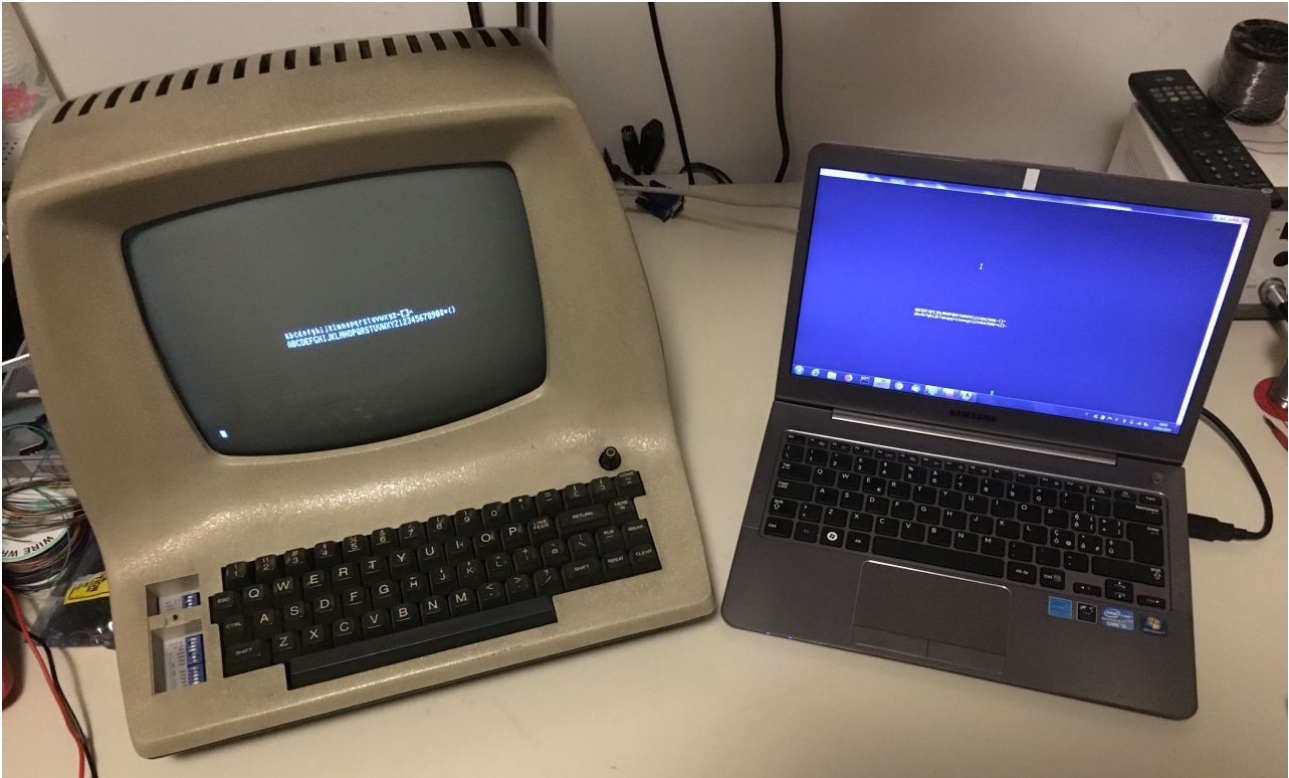


The work is not yet complete because you need to change a couple of switches, highlighted by the photos



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To test the functionality I used a PC with an USB to Serial adapter:



and this is the result:

