



# Technical Bulletin

## Technical Note TN002

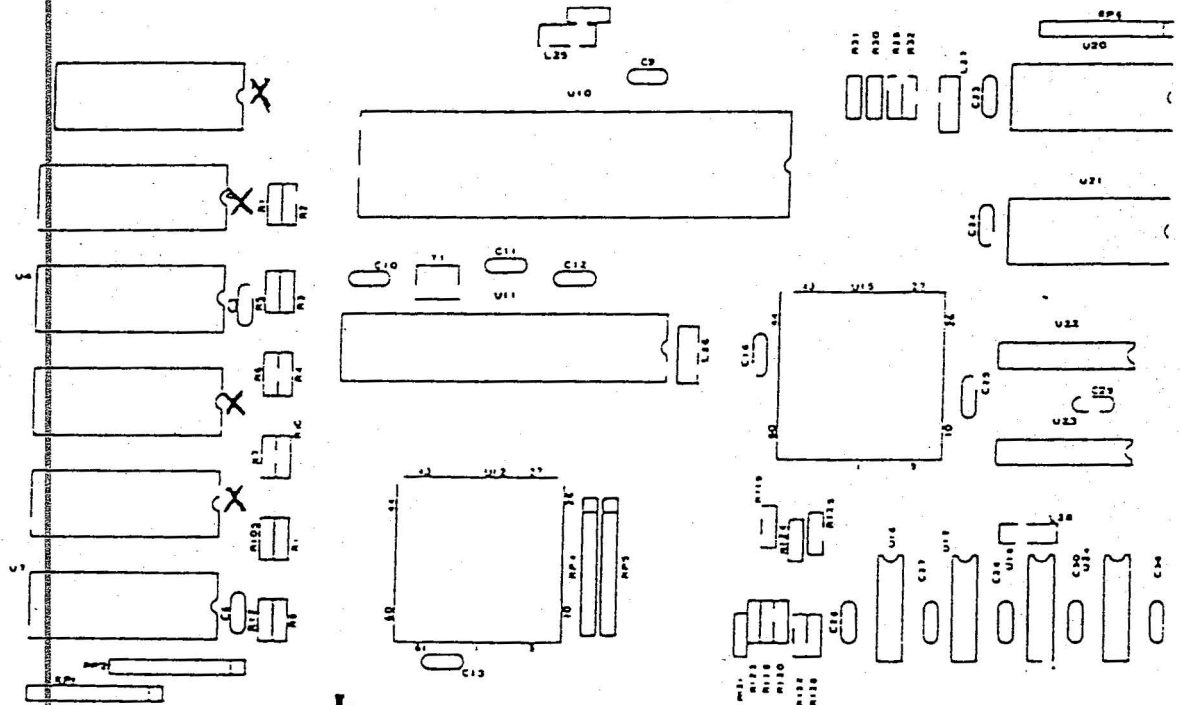
### Subject: TOS ROM UPGRADE

This document should accompany a set of 6 ROMS. These ROMS are identified as follows:

PART NUMBER	LOCATION
C026160-001	U2
C026244-001	U3
C026245-001	U4
C026163-001	U5
C026246-001	U6
C026247-001	U7

These ROMS should be handled with caution.

Before starting an upgrade, ensure that the 520ST is fully operational, then remove all power, video and disc cables.



C070243 REV.A

## ROM UPGRADE

Dismantle the ST carefully by removing the six screws from the base. Once plastic and shield have been removed, locate the ROM socket area of the board (see figure A). There are three versions of the 520ST that have been produced to date, the ROM installation will vary according to which version of the board you have so identify your board from the following:-

### BOOT EPROM - PCB Revision 2

These are very early computers which were produced before masked roms were available. You have this version if a jumper wire is visible running from below the socket marked U7 to the middle front of the socket marked U3 and/or the two chips in the sockets have labels with handwritten markings on them. To upgrade these versions requires soldering and desoldering. The first thing you will need to do is remove the PC board from its bottom plastic cover. Refer to figure 2. Now turn the board upside down and look at the area underneath ROM sockets marked U4, U5, U6, U7. Looking at pins 27 and 28 on these sockets you should be able to see a solder bridge shorting the two pins together; this short needs to be desoldered on all four sockets. Next turn the board rightside up again and look between U3 & U4, U4 & U5, and U6 & U7; towards the right hand side between each of these sockets should be a cut trace. This trace normally connected all the pin 27's together, so you will need to jumper it back the way it was before it was cut. Easiest way would be with three jumpers; first, jumper pin 27 of U3 to pin 27 of U4; second jumper pin 27 of U4 to pin 27 of U5; and third, jumper pin 27 of U6 to pin 27 of U7. Before checking for continuity between pin 27 of the sockets and A15 which can be found on pin 43 of the 68000 CPU chip (U10). Also make sure that all pin 27 are disconnected from all pin 28's.

Please note that it is very important that each rom be put in its appropriate socket and that they be plugged in with pin 1 in position that is consistent with other I.C.'s on the board. (See fid 1).

### MASKED BOOT ROM Versions - PCB Revision 2, B & C

Revision 2 comes in two forms. one of which has no links or track cuts in the ROM area. The other has a link on the rear of the board between pin 27 of the socket at U3 connecting to pin 27 of U7 and pin 3 of RP2. revisions B & C can be identified from their screen printing.

To upgrade, simply remove the existing chips by wedging a small flatblade screwdriver between the chips and their sockets and carefully lever the chips out.

Once the old chips have been removed, carefully insert the six new roms as shown in fig 1.

Please note that it is very important that each rom be put in its appropriate socket and that they be plugged in with pin 1 in a position that is consistent with other I.C.'s on the board. (See fig 1).

### MASKED ROM Version - PCB Revision 2B

This can be identified by the link options 'Masked Rom' and 'E-Prom' located close to sockets U4 and U7. You will need to install a wire shorting link joining the pads nearest 'Masked Rom' at positions U4 and U7 (see Fig 3).

Having done this replace the old Roms taking care to ensure that pin 1 of each is in a position consistent with that of other I.C.'s on the board. (See fig 1).

### MONOCHROME SYSTEMS WITH PCB REVISIONS 2 AND 2B

If ST boards at revisions 2 and 2B are to take TOS Roms in sockets U2 to U7, the following modifications are suggested to remove shimmer from Monochrome Monitors.

1. Add de-coupling capacitors C1, C2, C4 and C5 (fig 4).
2. Add a smoothing capacitor for the +5V supply (fig 5).

### FAULT FINDING

If after switching on your ST the DESKTOP does not appear, check your work, ensuring that all the ROMS are seated correctly.

On a SC1224 colour monitor the vertical and horizontal holds may need to be adjusted.

Remember that your desk top accessories will still need to be loaded from disk.

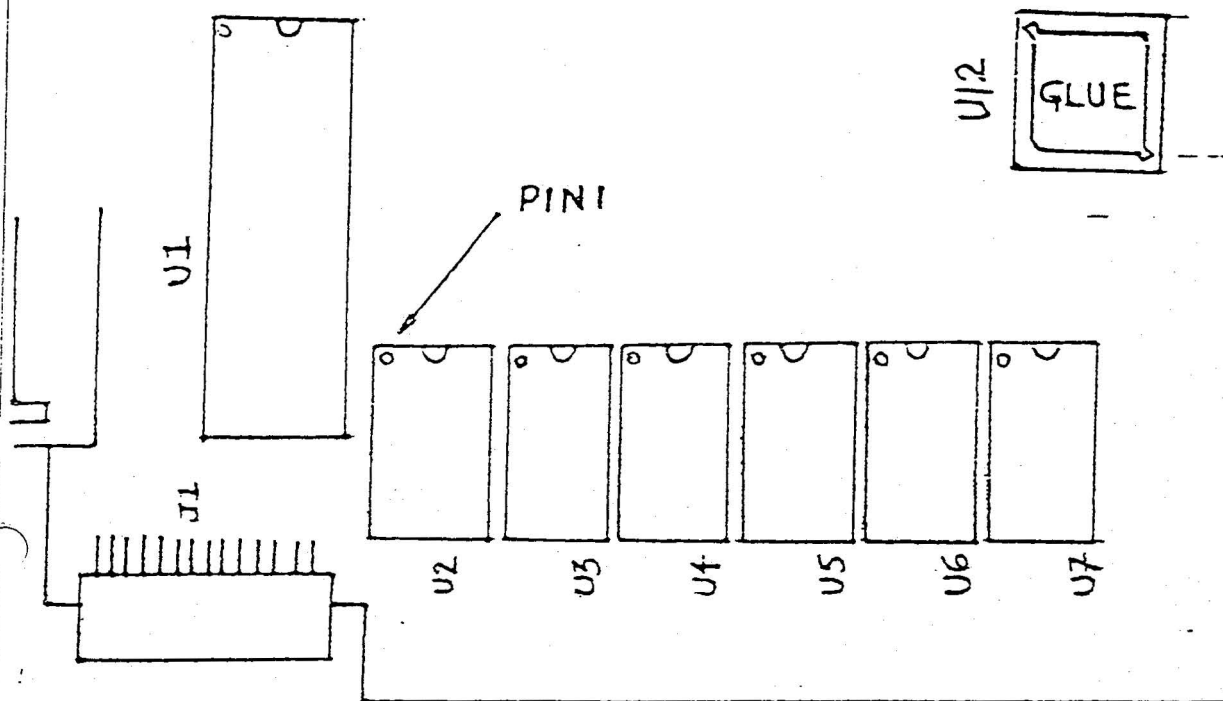
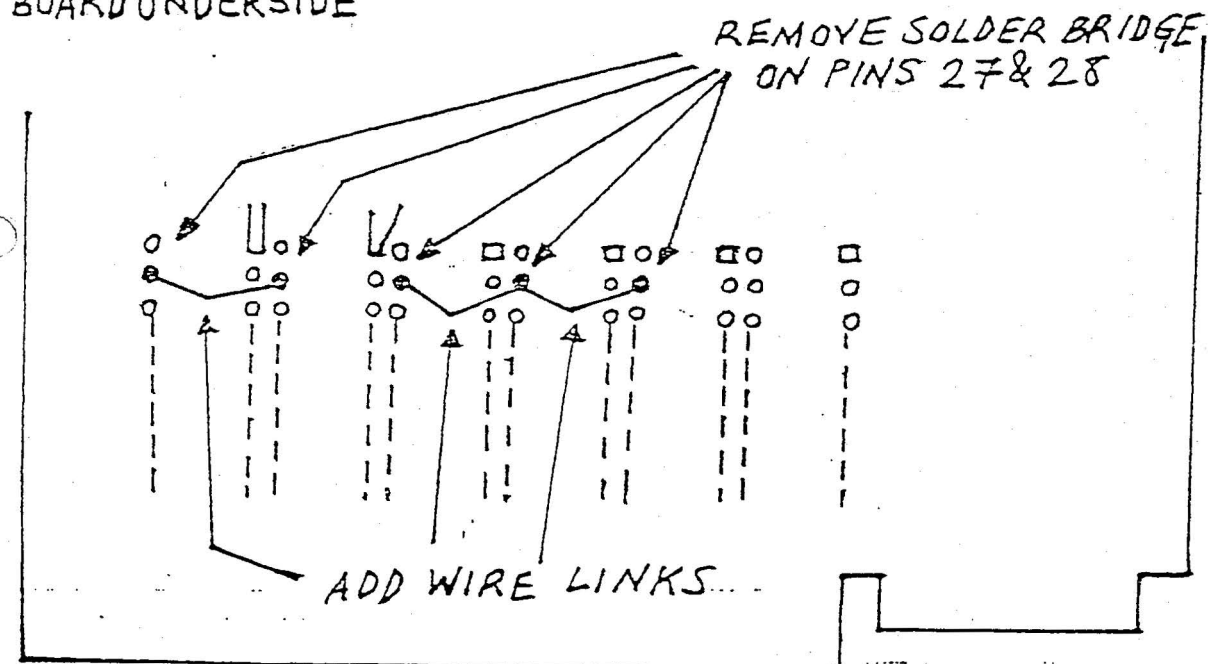


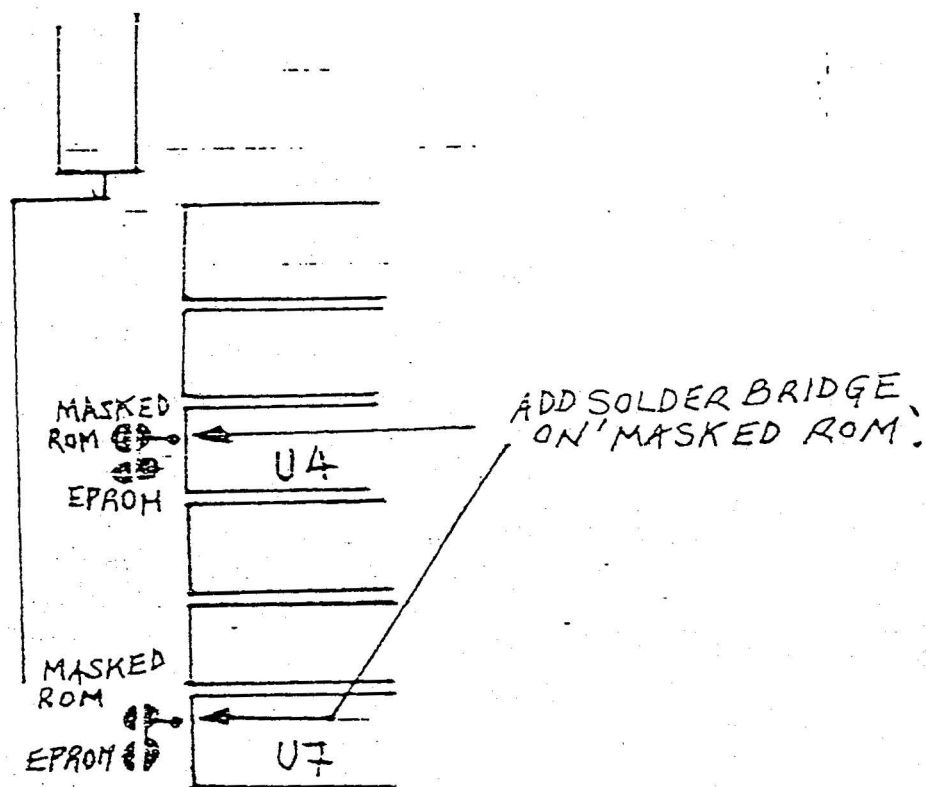
FIGURE 1.

BOARD UNDERSIDE



BOOT E-PROM VERSION

FIGURE 2.



REVISION 2B BOARDS. FIGURE 3.

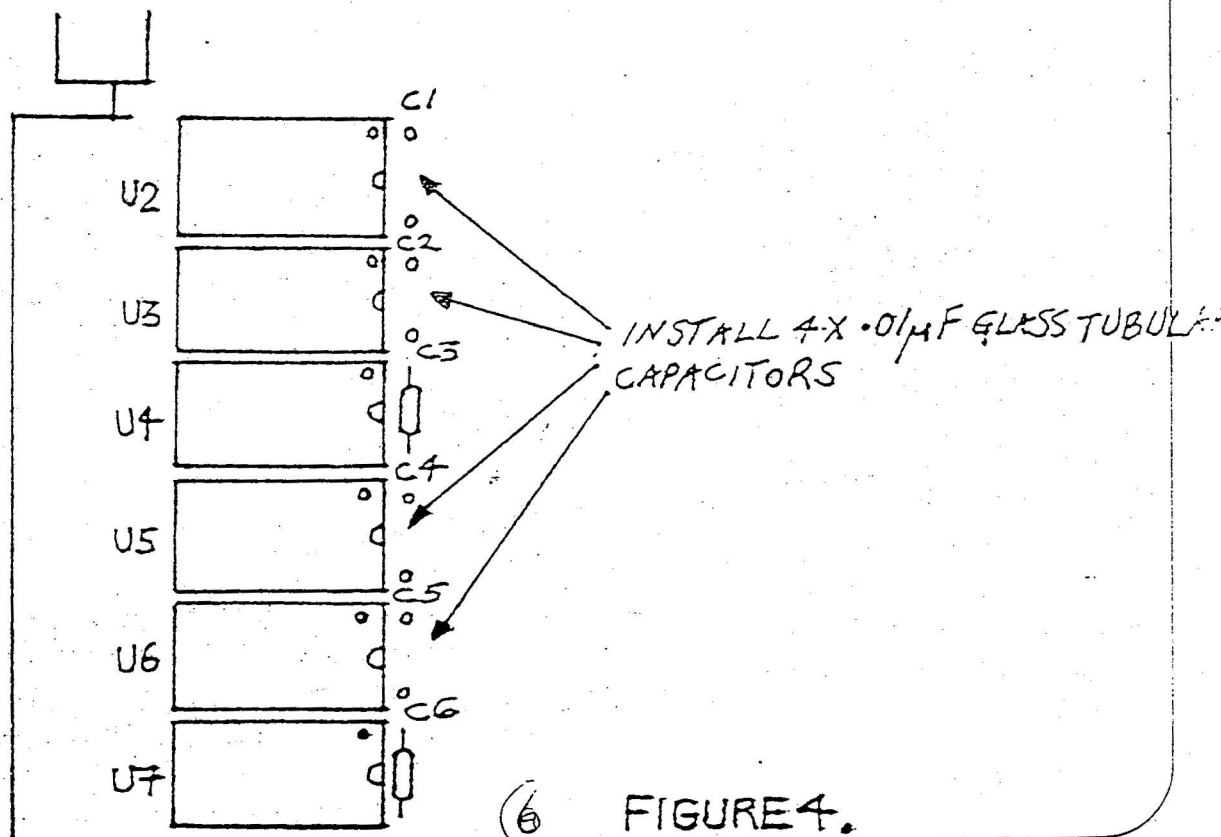


FIGURE 4.

INSTALL A 470 $\mu$ F, 16VOLT  
POLARISED  
ELECTROLYTIC  
CAPACITOR.

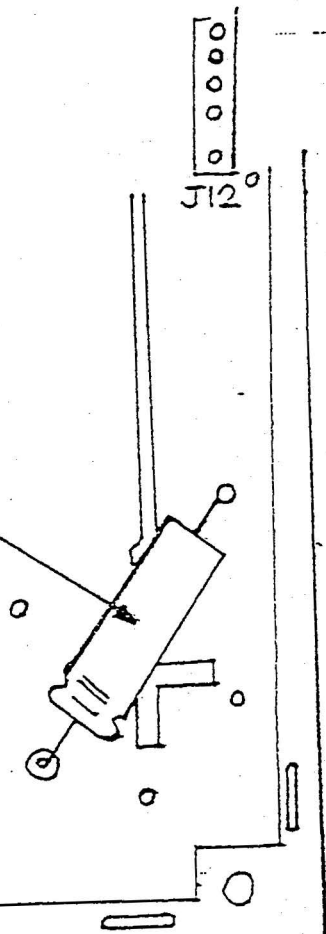
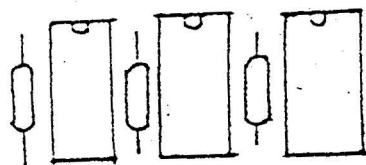


FIGURE 5.



TAN No. 890002

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# Technical Advice Notice

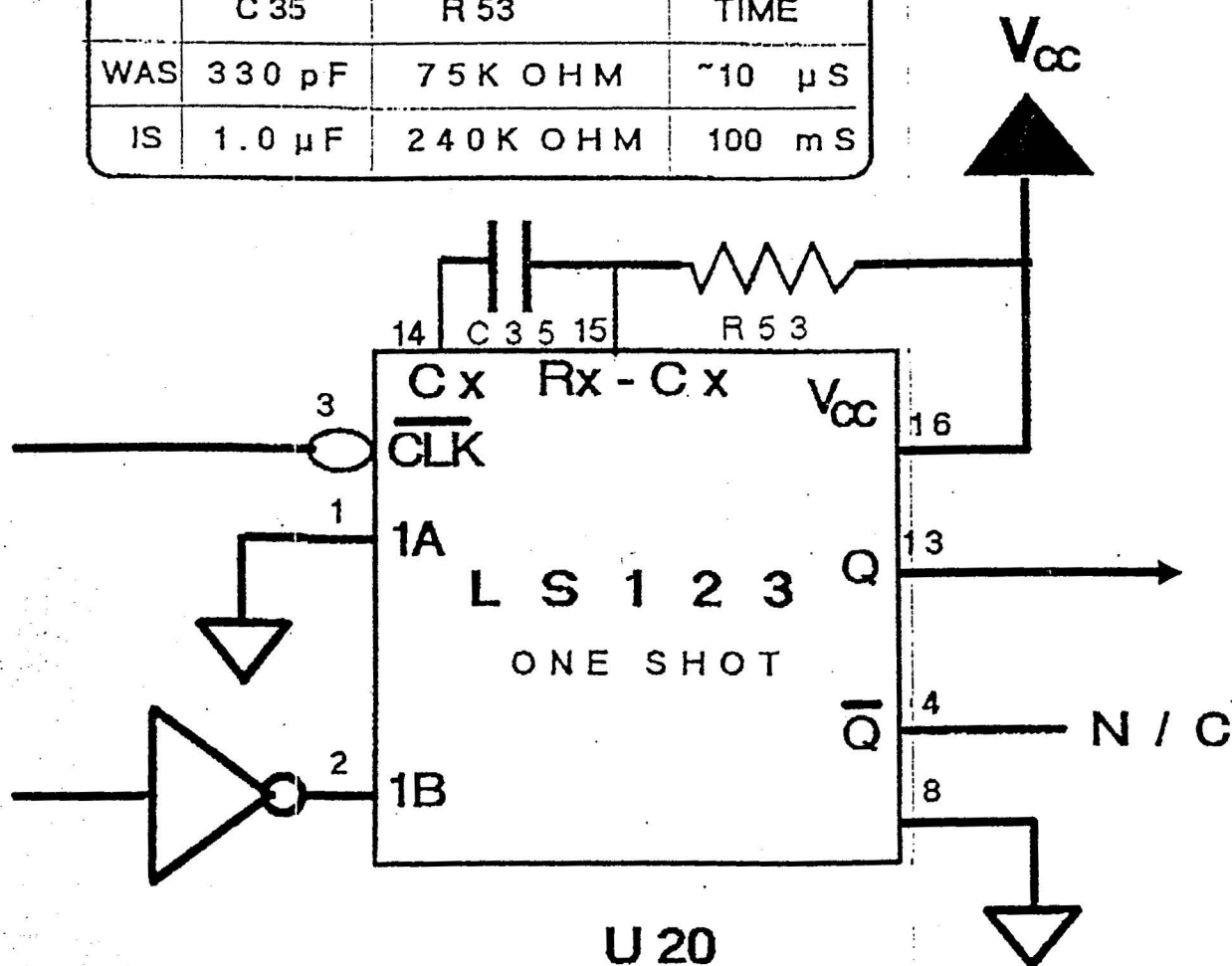
APP'D by: *LL*

MODEL/ ASSEMBLY: ST &amp; MEGA COMPUTERS

DATE: 8 MAY 89

## COMPONENT VALUES

	C 35	R 53	one shot TIME
WAS	330 pF	75K OHM	~10 $\mu$ S
IS	1.0 $\mu$ F	240K OHM	100 mS



FOR MODELS: SH205/MEGAFILE20 ONLY.

NOTE: Due to the differences in Buffering and Gating of the "RESET" signal, these changes are NOT required on the MEGAFILE30 or MEGAFILE60. Although NOT required, these values MAY provide some additional noise immunity. The reference designators will be different for these models.



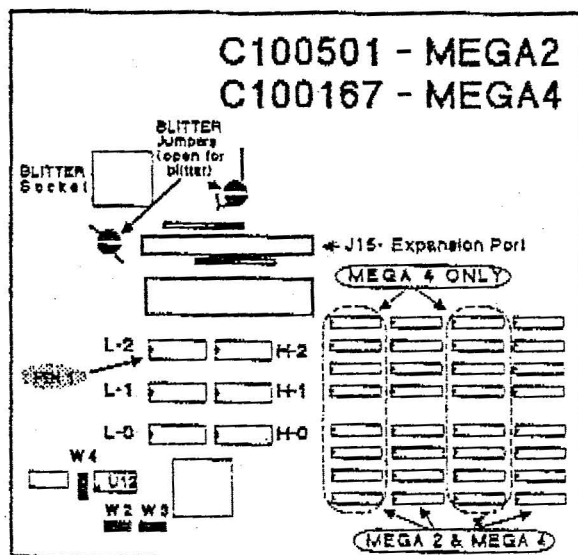


# DEALER INSTRUCTIONS FOR INSTALLATION OF CA400406 RAINBOW TOS (1.4)

NOTICE: RAINBOW TOS MUST BE INSTALLED BY AN AUTHORIZED DEALER OR SERVICE CENTER.

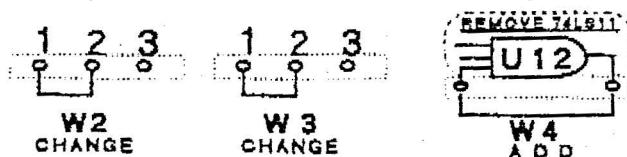
1. Remove system power cord.
2. Disassemble the computer.
3. Identify the PCBA and locate existing ROMs.
4. Find the CE, A16, and A17 or W2, W3, and W4 locations.
- 4a. Change, if required, to match the '6-256K ROMs' (see examples).
5. Remove the existing ROMs, noting location of pin '1' or DOT.
6. Install the 6 new ROMs. Be sure to match the 'L' and 'H' locations to those marks on each chip.
7. Reassemble and test with diagnostic version 4.2 or higher.

Note: Diagnostic version 4.1 will not work correctly with Rainbow TOS.

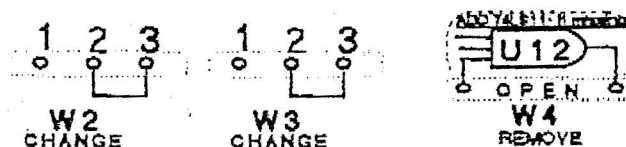


NOTICE: Some PCBAs have the ROM sockets installed backward, rotated 180 degrees. Please follow this drawing or the 'silk screen' markings and disregard the position of pin '1' on the socket itself.

## Modifications Necessary to Use a Set of 6-256K ROMs

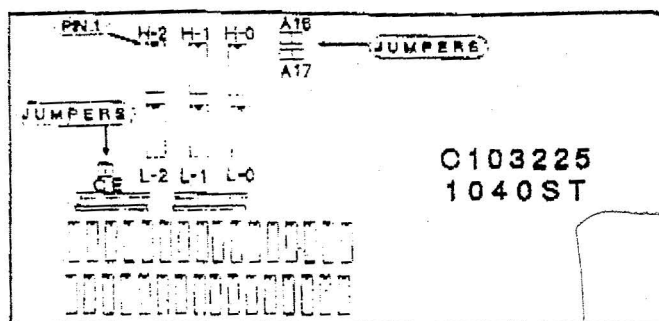
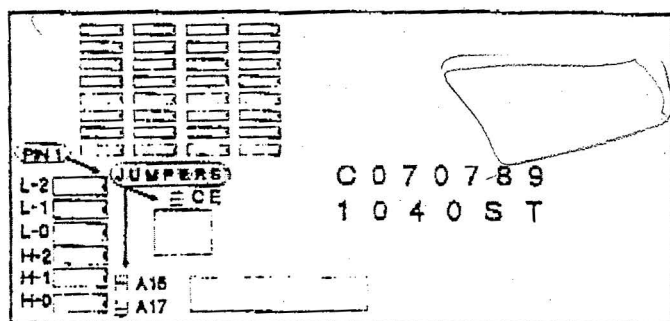


## Modifications Necessary to Use a Set of 2-1MEGA ROMs

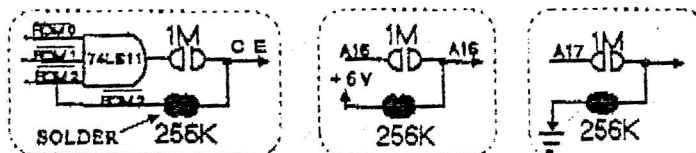




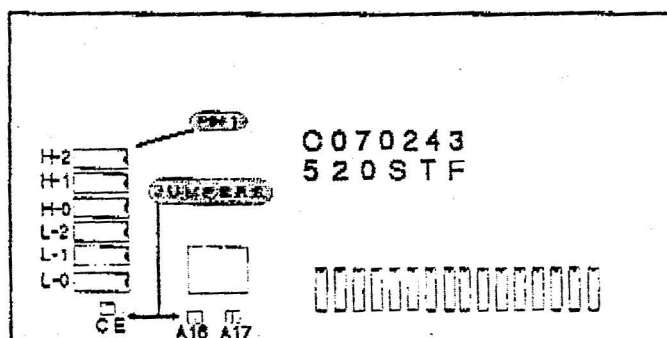
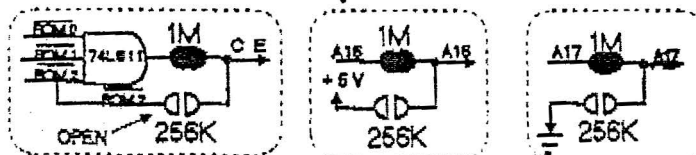
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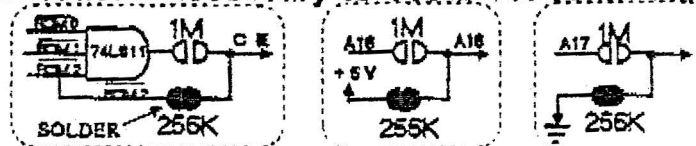
## Modifications Necessary to Use a Set of 6-256K ROMs



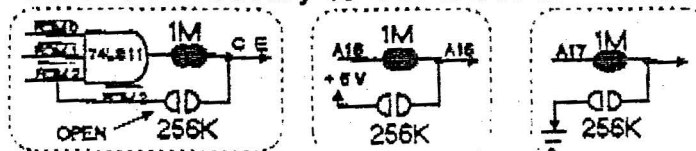
## Modifications Necessary to Use a Set of 2-1MEGA ROMs



## Modifications Necessary to Use a Set of 6-256K ROMs



## Modifications Necessary to Use a Set of 2-1MEGA ROMs



NOTE: Some PCBAs have the ROM sockets installed backward, rotated 180 degrees. Please follow this drawing or the 'silk screen' markings and disregard the position of pin '1' on the socket itself.

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