

# The TAB

## Tos Adapter Board

For Atari ST, MEGA ST, and  
Stacy Computers

Allows the use of 256K - 1 MEG TOS operating systems in the classic style computers. The newer TOS has many advantages over the previous versions, including a new desktop, faster system routines, and support for additional hardware upgrades. Function keys, drag files onto desktop, custom icons, and multiple desktops are a few of the features of the newer TOS operating system.

**TOS ROMS ARE NOT INCLUDED**

Some soldering required

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## TAB INSTALLATION

**CAUTION:** This product should only be installed by persons with proper training in the art of soldering. Newell Industries will not be held responsible for damage to the computer due to neglect or carelessness. Read these instructions carefully before proceeding. If you do not understand them, then seek technical assistance. If you do need assistance, you probably shouldn't be doing the installation. Newell Industries will install the TAB for you for \$40.00. This includes return GROUND shipping. This is just the installation fee, and DOES NOT include the TAB or TOS cost. Add an additional \$25.00 for the dual OS option. These fees apply to first time installations ONLY. If you have attempted to install the TAB and can't get it working, this set price WILL NOT apply. Installation price WILL then be determined by the amount of time and materials required to get the computer in working order again. This MAY (and probably will) be MORE than the normal installation charges. So if you don't KNOW what you are doing, don't do it.

Inspect the TAB upgrade board for any physical signs of damage or any bad solder joints. This is just a precautionary measure. The boards are inspected before packaging, but damage may occur afterwards.

These instructions assume that you are familiar with the computer and its components and have the computer already disassembled.

COMPATIBILITY: 520ST, 520STF/M, 1040STF/M, STACY LAPTOP, MEGA ST's

### Installation Instructions

1. Locate the GLUE chip (CO25915) and cut the traces going to pins 4,5,6,7,8. There may be only one trace going to each pin or there may be 2, depending on the motherboard that you have. These are the A16-A20 address lines respectively. Each one only goes from the 68000 CPU to the GLUE and MMU (CO25912). On some motherboards, the lines come from the CPU to the MMU and then on to the GLUE. In this case there should be only 1 trace to each of the 5 pins on the GLUE chip. On other motherboards, the lines come from the CPU to the GLUE and then on to the MMU. In this case there will be 2 traces to each of these pins (probably 1 on top and 1 on bottom) and both must be cut. In essence, the pins 4-8 at the GLUE need to be taken out of the circuit. Isolated and open. Nothing connected to them. Refer to drawings in back.

2. If you had to cut more than 5 traces, then you must jumper the A16-A20 address lines to the MMU from the CPU. A16-A20 are pins 44-48 on the CPU respectively and go to pins 11-15 on the MMU respectively. Do this on the bottom side of the motherboard. Use 26-30 gauge tinned wire. If you only had to cut 5 traces, then no jumpers are required. Refer to drawings in back for a visual aid.

3. If available, use an ohm meter to check the continuity between the CPU and MMU, and check that there is no continuity to the pins of the GLUE.

4. Locate a suitable place to position the TAB board and fan the first 7 wires to reach pins 44-53 of the CPU. Fan the next 3 wires (8-10) to reach the last TOS rom in your system. Fan the last 6 wires (11-16) to reach the GLUE.

NOTE: Cut all wires as short as possible to reach their termination point, within reason. No banjo strings please.

5. Connect wire 1 (the red one) to the capacitor going to pin 1 (+5v) of GLUE.

6. Connect wires 2-7 to CPU pins 44-48, and 52 respectively.

7. Connect wires 11-15 to GLUE pins 4-8 respectively.

8. Connect wire 16 to the other side of the capacitor where you connected wire 1.

9. It's a good idea to test the computer at this point. Place the motherboard where you would normally place your computer. Make sure it is on a non conductive surface. Connect monitor, power supply, keyboard, and optionally your disk drive and turn the power on. The computer should boot as it would before anything else was done, unless you don't hook up the disk drive, then it will take a little longer and go to the desktop without any icons. If all is well, proceed to next step.

10. Remove the 6 TOS roms chips, and note where they were installed for later reference. If you have the 2 chip rom set, simply remove the old roms and plug the new roms into the sockets, and skip instructions 11-15, but see notes on 2 chip set roms.

11. On the 128K x 8 bit roms (2.06) strap and solder pins 1,32,31, and 30 together. Bend out pins 2 and 3 to about a 45 degree angle.

12. Install the EO rom in the socket where you removed chip CO26165 (TOS 1.0).

13. Install the EE rom in the socket where you removed chip CO26162 (TOS 1.0).

NOTE: Make sure that the exposed 5 pins (1,2,3,31,32) do not short out to anything.

14. Connect wire 8 to pin 3 of both new roms.

15. Connect wire 9 to pin 2 of both new roms.

NOTE: Wire 10 does not get connected. It is a spare.

16. Test computer as in step 9. On power up, the Atari logo should appear and after an added delay (for a hard disk to come up to speed) it should start a memory test. Press escape key to bypass the memory test.

17. If all is well, reassemble computer, or proceed to dual TOS optional instructions.

## 2 CHIP SET ROM NOTES:

Some 2 chip rom sets may NOT be pin compatible with the EPROMS/ROMS that the new TOS's will come on. If you do not know the difference between EPROM and ROM, then you should seek technical assistance. There are several ways these TOS's could vary, both now and in the future. In any case, you should verify the compatibility of the parts before you install them. You MAY have to change some jumper settings on the motherboard if you have incompatible EPROMS/ROMS. These instructions ASSUME that TOS is being supplied on 27C1001 compatible EPROMS/ROMS (as they were at the time of this document), and that your motherboard is jumpered/wired for this type of part. If this changes at a later date, you must compensate for the new pinout, if different.

If you are not sure if the parts you have are compatible, refer to the problems section later in this document for a more detailed description of connections.

### Dual TOS Instructions (Optional)

If for one reason or another you want to be able to switch between the new TOS and the old TOS the following is required. Do the normal installation FIRST. Then follow the following instructions.

NOTE: If your rom chips are under the power supply, you will have to find some way to raise the power supply about 1/2 inch, or you will have to remove the sockets the dual roms go into and solder the original roms to the motherboard. If you raise the power supply, the case will have to be cut for the plug and power switch. Also the top cover may not fit good and the extra heat closer to the plastic could cause the plastic to melt. You will also probably need to modify your top shield. In other systems check the clearances BEFORE you proceed with these instructions.

#### A. 6 chip set instructions

1. Remove the new roms from the sockets (do not disconnect wires) and install your old roms back in the sockets, but bending pin 20 of both old roms out.
2. Piggyback the new roms on top of the old roms with the exception of pins 3 and 22. These pins should line up with pins 1 and 20 of the old roms respectively. It may be easier to piggyback the roms out of the sockets.
- NOTE: Pins 20 of the old roms and pins 22 of the new roms are the active low chip select pins and if not in use must be pulled high.
3. Strap the old roms pins 20 together and connect to +5V through a 10K ohm resistor.
4. Strap the new roms pins 22 together and connect to +5V through a 10K ohm resistor.
5. Wire the center post of a SPDT toggle switch to pin 20 of one of the old rom sockets.
6. Wire one side of the switch to one of the pins 20 of the old roms.
7. Wire the other side of the switch to one of the pins 22 of the new roms.
8. Test computer as before. Flip the switch to change the TOS. DO NOT flip switch with POWER ON. If you do, the system WILL crash.
9. Reassemble computer, and mount toggle switch in an out of the way location to avoid accidental switching, but keep it as close to the roms as possible.

#### B. 2 chip set instructions

NOTE: Assumes pin compatible parts.

1. Remove the new roms from the sockets and install your old roms back in the sockets, but bending pin 22 of both old roms out.
2. Piggyback the new roms on top of the old roms with the exception of pin 22. It may be easier to piggyback the roms out of the sockets.
- NOTE: Pin 22 of the roms are the active low chip select pins and if not in use must be pulled high.
3. Strap the old roms pins 22 together and connect to +5V through a 10K ohm resistor.
4. Strap the new roms pins 22 together and connect to +5V through a 10K ohm resistor.
5. Wire the center post of a SPDT toggle switch to pin 22 of one of the old rom sockets.
6. Wire one side of the switch to one of the pins 22 of the old roms.
7. Wire the other side of the switch to one of the pins 22 of the new roms.
8. Test computer as before. Flip the switch to change the TOS. DO NOT flip switch with POWER ON. If you do, the system WILL crash.
9. Reassemble computer, and mount toggle switch in an out of the way location to avoid accidental switching, but keep it as close to the roms as possible.

### Problems

- A. If your system doesn't work after you have installed the new roms, check the following.
1. Make sure the roms are plugged into the proper sockets. From pin 19 of the GLUE, you should have continuity to both roms pin 22 (old 6 chip socket set). If not, you are in the wrong rom socket banks.
  2. Also on old 6 chip socket set, check that rom pin 24 of the EO rom has continuity to GLUE

- pin 46. The EE rom pin 24 should have continuity to GLUE pin 47. If either of these is wrong, you are in the wrong socket.
3. The red wire from our board is wire #1, and count sequentially to 16 at the other side of the ribbon cable. Don't confuse wire number with the pin number on the plug. They DON'T match up. Wire 1 actually goes to pin 16, wire 2 goes to pin 1, etc. We ALWAYS refer to WIRE NUMBER.
4. Double check to make sure all wires are going to proper place and without shorts.
5. Did you test the computer at the suggested intervals. If not, back up and try to isolate the problem.
6. On original 2 chip rom sets, check for proper jumpers on motherboard for the type of part you have.
- B. If you use the dual rom option and you are using a TV, and you experience RF interference, using a shielded cable to the switch will help. Ground the shield close to the connections to the roms. DO NOT connect shield to switch.

It's more likely to be an incorrect installation than a bad board. There just isn't much on our board to fail. We use FAST TTL logic when normal LS would work. The circuit is proven and rock solid. Check your installation again. We will repair or replace any defective board returned to us within 1 year of purchase.

Refer to drawings at back during installation.

## TOS 2.06 FEATURES

This list of features has been compiled by us, and is intended as a guideline for using the new TOS. It IS NOT a complete description of the DESKTOP, or the TOS 2.06 operating system. It will mention some of the differences between TOS 1.0 & 2.06.

### BOOT UP

On boot up, you will notice there is a delay. This is designed to give a hard disk a chance to come up to speed. So you can hook your hard disk & computer to the SAME power switch and turn them on at the same time now.

If you don't touch the keyboard on power up, the new TOS will perform a RAM & ROM test of the system. The time required for this depends on the amount of memory you have. To BYPASS this, simply hit your Esc key anytime after powerup. If you want to bypass the hard disk boot, hold the Control key down during powerup. If you want to boot your hard disk without auto folder programs, accessories, and desktop file, hold down both the Control AND Shift keys during powerup.

### NEWDESK.INF

The new TOS searches for 'NEWDESK.INF' on power up. If this is not found, it uses the old 'DESKTOP.INF' file. Once you are up and running, configure your desktop, and SAVE it. It will be saved as 'NEWDESK.INF'. If both files are kept on the boot disk, then it would be compatible with both the old and new TOS.

You will notice some new commands under the top menu. Here are some brief explanations.

### FILE

- SEARCH: Will search the current drive for specified files.
- DELETE ITEM: Will delete ALL highlighted items.
- BOTTOM TO TOP: Will bring the bottom folder to the top.
- SELECT ALL ITEMS: Will highlight ALL items in the current window.
- SET FILE MASK: Current Window will show only files that match this file mask.

### VIEW

- NO SORT: Shows files in th order they are actually in on the disk.
- SIZE TO FIT: Will attempt to show all files in window, if ICONS are selected.
- SET COLOR & STYLE: Set the color & hatch patterns for the windows & desktop.

### OPTIONS

- INSTALL ICON: Allows ICONS to be installed in window or desktop.
- INSTALL APPLICATION: First HIGHLIGHT the application program. Allows you to install an application with many different parameters. To place on a function key, type Fn where it ask 'Install as:'. F11-F20 is using Shift + Fkey Click on 'Auto' if you want this program to run on bootup. Put document type (.TXT, .SRC, .ARC, etc.) in ONLY if you want this program to run ANY TIME you open one of these type files. Put in any arguments you want passed to the application when it is ran. BE SURE and set the proper paths required to run the application, normally FULL PATH.

INSTALL DEVICES: Does a system check and installs icons for All devices found.  
READ .INF FILE: As you may have guessed you can have as many different desktop configurations as you want. This let's you read a new one in. CAUTION: When configuring your different desktops, rename the one you want to boot with temporarily. Any time you save the desktop, it's goes to 'NEWDESK.INF' and WILL overwrite the existing one. Once you have configured all your desktops, and changed their names to what you want, change the name of your original back to 'NEWDESK.INF'.  
DESKTOP CONFIGURATION: Set your default directory (normally=applicaiton) and input params (normally=Full path). Shows your function key assignments, if any. And last but not least, lets you assign single keystrokes to do all the functions in the top menu.

#### HELP KEY

Press the help key to display many more keystroke features of the new TOS. You will learn more by playing with these than I could tell you in a few pages.

#### PUTTING FILES ON THE DESKTOP

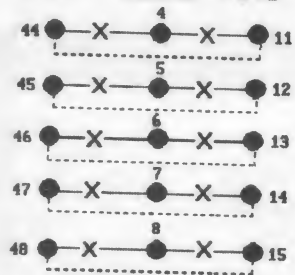
You can now put ANY FILE right on the desktop. What does this mean? Well, once you put a file on the desktop, you won't have to open a window to run it. Simply highlight and drag the file out of the window and onto the desktop. Any time you want to run the file, just double click on the icon. BE SURE and set the proper paths for the application. No more going through windows to get to it. While the function keys are limited to 20 (F1-F20), this is limited to only the size of the desktop. You can have 32 icons on a medium res. screen. You can also put ANY file on the desktop, even folders. click on a desktop folder and a window of that folder will open. You can also edit the shape of any icon on the desktop to more reflect what it is. REMEMBER to SAVE your desktop after ANY configuration change, or it will be lost the next time you boot.

Try dragging a text file on top of your word processing program or icon. If all is set right, the program will run and load the text file.

#### XCONTROL.ACC AND CPX'S

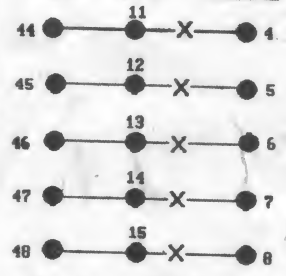
XCONTROL.ACC is the new control panel. It requires that the .CPX files be available to it for it to run properly. They are in the CPX folder on the disk. Once installed, you will need to configure it. You may already have a control panel that you use, and XCONTROL.ACC IS NOT REQUIRED to use the new TOS. Try it and see if it works better for you than the one you are using. The documentation for the XCONTROL panel is on the disk. I have included several SHAREWARE programs on the disk. If you decide to use these, please contribute to the authors request.

**68k GLUE MMU**



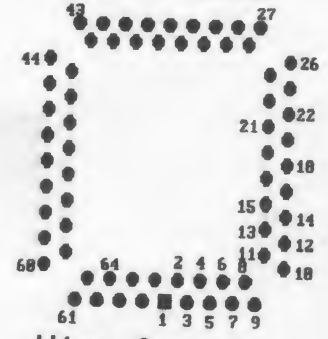
Cut lines marked 'x'. Add wires indicated by dotted lines.

**68K MMU GLUE**



Orig. 520 ST

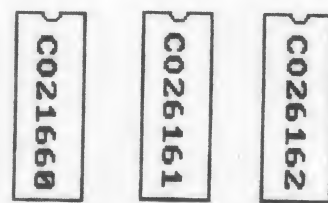
**MMU & GLUE**



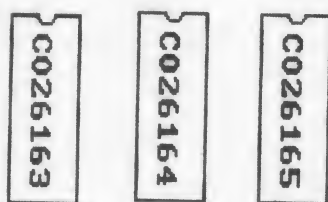
View from top

520/1040 STF/M

Motherboard modifications

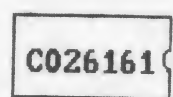
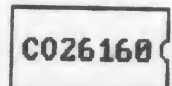


EE ROM GOES HERE

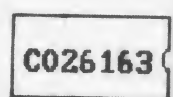
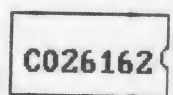


EO ROM GOES HERE

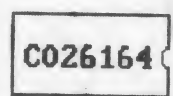
Typical 520 ST  
Should be the same for all.



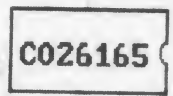
EE ROM GOES HERE



Tos rom numbers represent TOS 1.0



EO ROM GOES HERE



Typical 520/1040 STF/M

This setup will vary, depending on YOUR motherboard

