THE "XL-MATE!"

The "XL-Mate!" has been devised to allow MANY of the pro-
grams which were backed up with an "Impossible!" to now run
on an unmodified or slightly modified 64K Xl computer! If
it is used as a disk program only (without the enclosed Oper-
ating System Protection Switch), you should be able to run over
50% of your backed-up software. By adding the O.S.P.S. circuitry,
80% to 90% of all software backed up with your "Impossible!"
should now run.

HOW THE "XL-MATE!" WORKS.

It's really quite simple! First we must increase your XL
computers' usable memory to 52K (even though you purchased a
64K computer, 16K of memory is being used by the computers
internal Operating System which leaves you with only 48K of
usuable RAM memory). To accomplish this, we load a 12K (our
own) Operating System into RAM memory. Then, through software,
we disable the 16K of interal ROM (the computers' original
Operating System) which leaves us with a net gain of 4K extra
usuable RAM memory! The "XL-MATE!" can now allow most "Impossible!"
backups to run on an umodified 64K XL computer PROVIDED that the
backup program doesn't try to automatically switch the original
XL Operating System back in! If a significant number of your
"Impossible!" programs fail to boot with the "XL-MATE!", we
suggest that you install the O.S.P.S. which we included at
no extra charge. Its purpose is to prevent the original oper-
ating system from being switched back into memory (and thereby
reducing memory back to the original 48K of usuable RAM)!

INSTALLATION OF YOUR O.S.P.S. (optional)

Installation is really quite simple! All you have to do
is remove the keyboard (top half of computer) and the metal
shielding which covers the main circuit board. This is done
by preparing a clean flat work space which is at least 3 feet
long.

1. Disconnect all cables.

2. Remove the 6 screws from the bottom of computer.

3. Flop the top half (keyboard half) off to the right
side (1200XL's to the left side) and disconnect the keyboard
ribbon cable.

CAUTION!

Take a close look at how the keyboard ribbon cable is
connected to the bottom half of the computer. 800XL cables
are pressed directly into a long black plastic socket on the
right side of the computer. 1200XL's are "usually" connected

with two connector sockets that slide over a series of connector pins located at the left front of the computer. Remove the cable on the 800XL by grasping the ribbon cable itself at each end with your thumb and forefingers and firmly pulling it straight up and out of its socket. If you own a 1200XL, just slide the cable connector off its pins. Now set the keyboard half in a safe place.

To remove the metal shield, first ascertain how the shield is fixed to the circuit board. Most computers simply have little metal tabs all around the outer perimeter of the shield which are bent over and hold the shield in place. If this is what your computer has, simply straighten the tabs by prying them upward with a knife or thin bladed screw driver. Once they are all straightened, simply lift the front portion of the shield to expose the circuit board.

If you have something like push on rivets holding the shield together, simply pry them up with your knife and they'll pry right out.

If you have screws with the heads facing upward, simply unscrew them.

If you have screws with the heads facing downward or if you have bolts with nuts on one side (800XL's only), you must remove the entire circuit board from its plastic base (don't panic, it's quite simple!). Simply remove the screws along the rear of the circuit board which are located just to the right of your power cable jack, another just to the left of the I/O cable port, and sometimes one is located between the joystick ports; do not remove the two screws on each side of the parallel bus. Place the computer in your lap with the joystick ports facing the ceiling. Place your thumbs on the plastic base just above each of the joystick ports and flex the base outward so the base can clear the ports. Now, with your knife or screw driver, gently pry the circuit board free of the plastic base, then remove the screws holding the top and bottom halves of the shield together.

CONGRATULATIONS! YOU JUST COMPLETED THE DIFFICULT PART!

Now you should locate the PAL chip. It's the only 20 pin (10 pins per side) chip in the computer. If you have an 800XL it's located just in front of the cartridge slot at location U-3. If you have a 1200XL, it's located about 3 inches to the right of the cartridge slot at location U-14.

NOW! You must determine if your PAL chip is in a socket or is it soldered directly to the circuit board (only the newer 800XL's were soldered in).

"NO SOLDER" INSTALLATION

For those of you who are afraid of soldering, we've included these "NO SOLDER" instructions which are applicable ONLY if your

PAL chip is in a socket. If you are familiar with soldering,
we recommend that you skip to the "SOLDERED IN" instructions
for a more professional installation.

     If you have determined that your PAL chip is in a socket,
remove it by gently prying it up from each end (just a little
at a time so you don't bend any pins). Now insert the ends
of our O.S.P.S. wires into socket holes #9 and #10 (it doesn't
matter which wire goes into which hole).
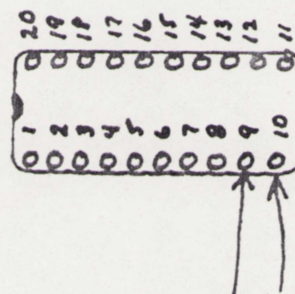
Insert wires here.

     Now re-insert the PAL chip (along with the wires) making
certain that you don't bend any of its pins, that all pins are
in the socket and that the notched end of the PAL chip is
<u>toward the left</u>! Make sure that chip is firmly seated all the
way into its socket and that the O.S.P.S. wires are in their
proper holes and that the bare wire ends are not shorting
across any other pins or touching anything metal.

                    "SOLDERED IN" INSTALLATION!

     If you have determined that your PAL chip is soldered
directly to the ciruit board or if you just wish to make a
fast and professional connection, connect the O.S.P.S. wire
to the following locations.
     On a 800XL, solder one wire to the left connection point
of resistor R-88. It is the third resistor down from the top
in the first grouping of 6 resistors, just to the right of
resistor R91 and just to the rear of the large 40 pin chip
at U-22.

Solder wires here!

R-91   R-88   C-64

U-22

40 pin chip

40 pin chip
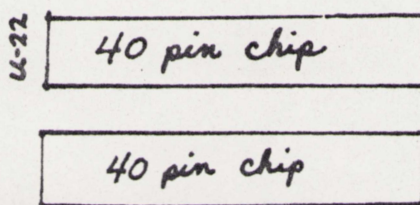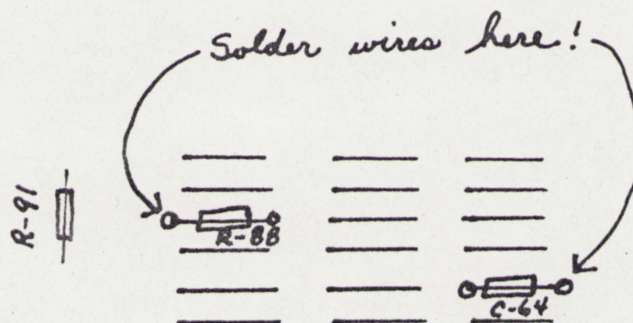
The second wire should be soldered to any ground or the right side connection point of capacitor at location C-64.

On the 1200XL, locate resistor R-48 just to the left of the large "color adjustment" pot near the front center of the main circuit board. Solder one wire to the REAR connector of this resistor. The second wire should be soldered to a ground or the RIGHT side of capacitor C-2 located between the PAL chip and the large 40 pin chip just in front of the PAL chip.

THAT'S IT! YOU'RE FINISHED!

Reassemble the shielding, replace the keyboard ribbon cable, mount the switch wherever convenient (we suggest drilling a ¼" hole in one of the rectangular vent slots located along the top rear and/or sides of either XL computer). Keep as much of the wire as possible under the shielding to minimize RF interference. NOTE! Your switch has an indicator dot on one side. This dot represents the "ON" position. Assemble the top and bottom halves of the computer and you're ready to use your "XL-MATE!" with the O.S.P.S. circuitry installed.

"XL-MATE!" OPERATING INSTRUCTIONS

1. Boot "XL-MATE!" (hold OPTION down on 800XL computers).

2. After the "XL-MATE!" has fully loaded, turn your O.S.P.S. to "ON" (if switch is installed). Your computer will not boot if the O.S.P.S. is ON before the "XL-MATE!" has been booted.

3. Insert a program disk backed up by The "Impossible!".

4. Press SELECT for a machine language program or OPTION for a "BASIC" program.

5. After you've finished with your program, you can instantly jump back to the "XL-MATE!" MENU screen by pressing SELECT and OPTION simultaneously.

Enjoy!

Computer Software Services
(716) 467-9326

A REMINDER

The "XL-MATE!" cannot run all "Impossible!" backups (especially on 1200XL's), but if updates do become available, they will be offered at a non-profit price of $6 to defray the expense of the disk, packaging, bookwork, shipping and

handling.

REPLACEMENT POLICY

As with all products manufactured by Computer Software
Services, we will REPLACE defective product or disks FREE
as long as they haven't been tampered with. There are NO
REFUNDS for any reason! Unauthorized returns will be refused.
There is a backup copy of the "XL-MATE!" on side two of your
disk.