Populating and Installing Synthex Rev 2/3 EPROM adapter board.   R Grieb 5/13/2018

Please read these instructions before purchasing or installing the EPROM adapter, to make sure you are comfortable performing the necessary steps. Note: This adapter is usable on the Rev 2 and 3 Elka Synthexes which have MIDI.   These versions used three EPROMs, as opposed to four in the very early units.

1) Remove the four screws holding the front panel down and tilt it back.

2) Carefully remove the three EPROMs near the left edge of the CPU board. I prefer to use a small flat blade screwdriver to pry gently between the socket and the chip (be careful not to pry under the socket by mistake) at the two ends alternately. The goal is to bring the chip straight up if possible to avoid bending the pins. I am not a fan of "chip pullers" as chips that have been in the same socket for thirty years tend to come loose all at once and it's easy to bend the corner pins.   Place the removed chips on conductive foam if you have some, or on a small piece of Styrofoam wrapped with a single layer of aluminum foil. This will short the pins together and prevent static electricity (ESD) damage. Please keep the old chips in case you notice something and want to find out "Did it do that before I changed the firmware?"

3) Below is a photo of the IC sockets used in one Rev 2 Synthex.   Please note that the openings for the IC pins are rather small, and also that the middle socket is not perfectly parallel to the other two.   This is why I am not supplying an assembled pcb.   The header pins are a nice tight fit in the EPROMS sockets, and must align perfectly to allow plugging them in. If I were to solder the headers to the board myself, there is a good chance they would not plug into your unit, at least not without a lot of coaxing. I want to avoid any frustration and possible damage to the EPROM sockets.
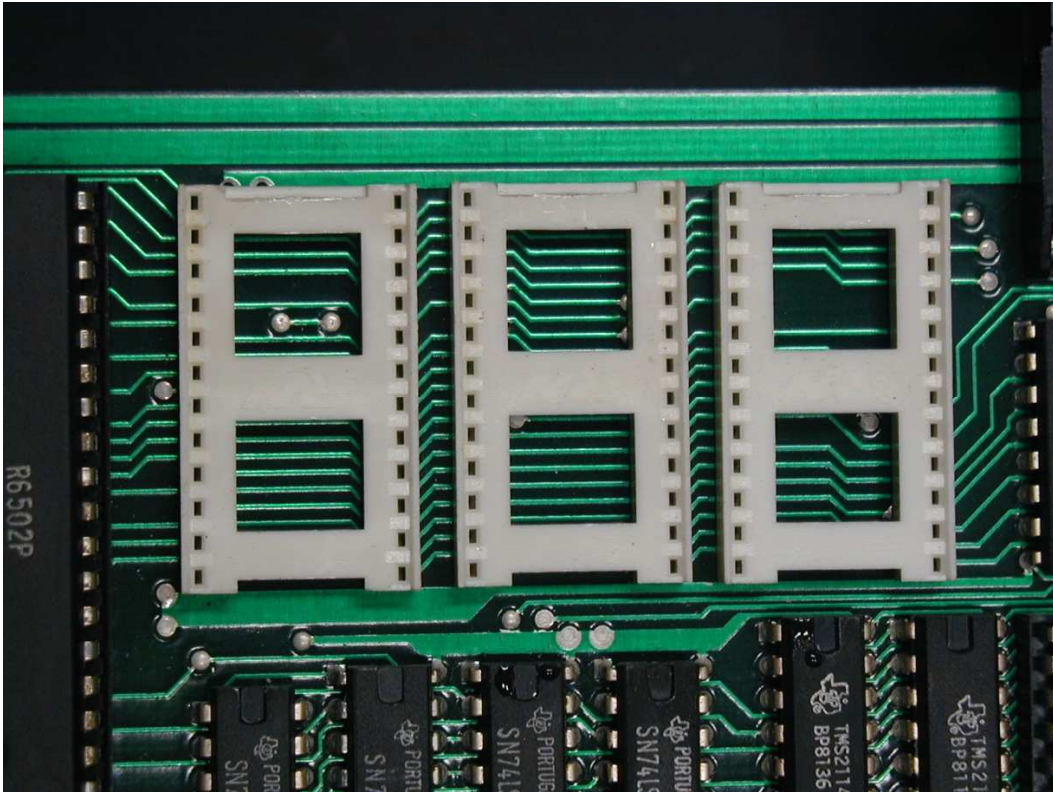
4) Place the three headers so that they are sitting in place on the three EPROM sockets, but not pressed down into them.   The headers have a small 1 next to pin one, although they will work just fine inserted the wrong way around.
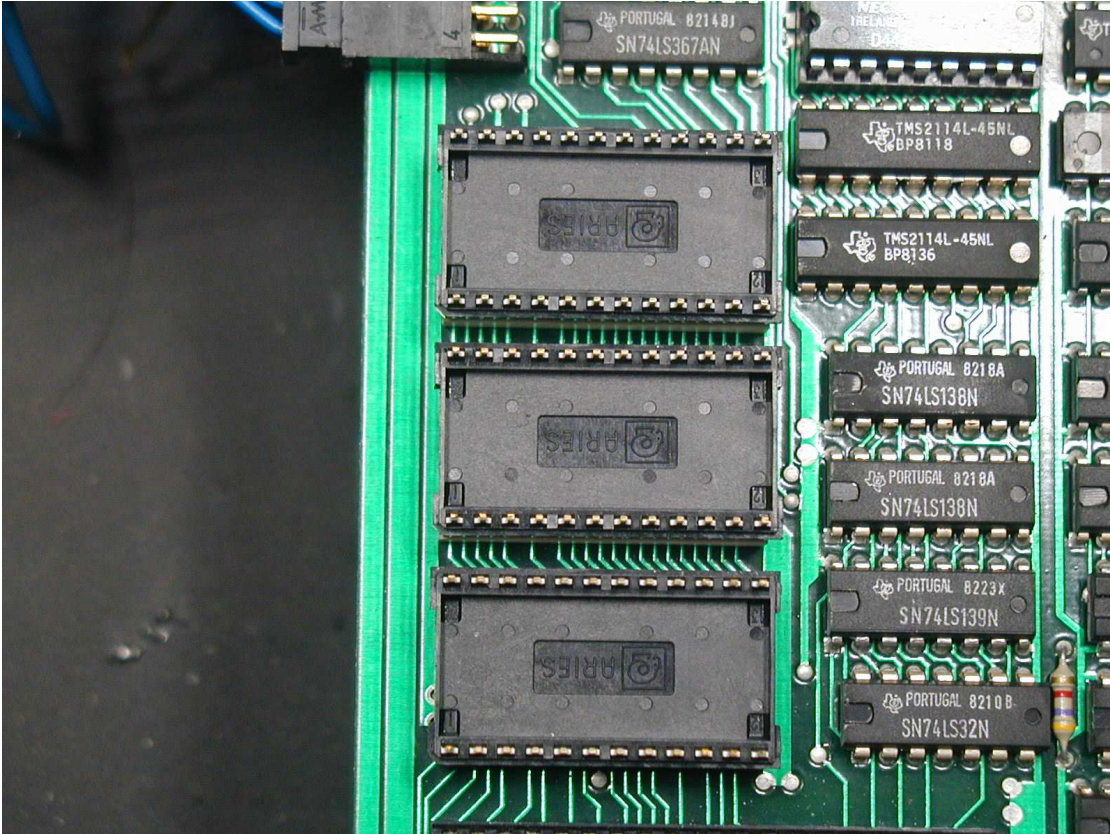
5) Place the adapter pcb onto the headers, to insure that alignment is good.   This will tend to move the headers slightly up or down in the sockets so that all three are even.
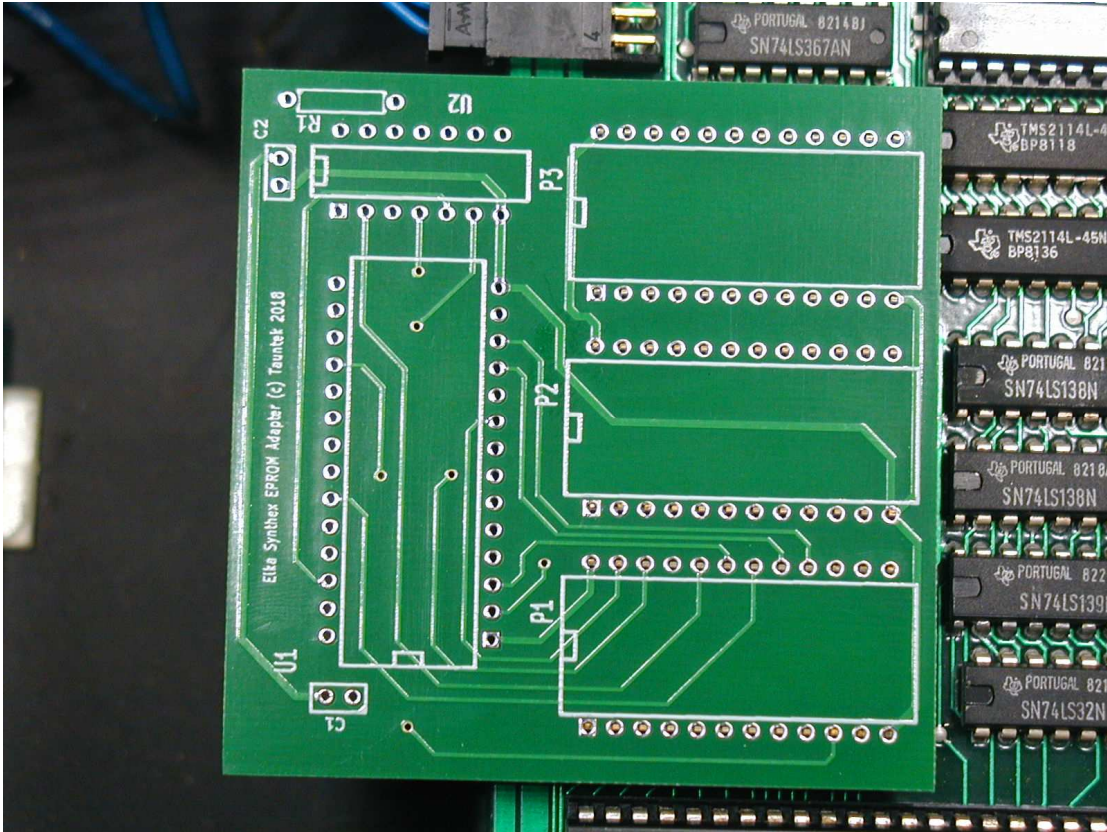
6) Remove the pcb and press the headers to insert the pins into the sockets, being careful not to bend any of them.   Place the pcb on the headers again to insure good alignment. This will be a little harder than the first time, but not impossible. The holes in the pcb for the headers have some slop in them to make this easier.   Once you are satisfied that the pcb alignment to the headers is good, solder the four corner pins on each header, to hold them in place. You could solder all of the pins, but I prefer not to solder near plastic to avoid melting things. You may want to place a towel over the keybed before soldering, to protect the keys from any small drops of hot solder.
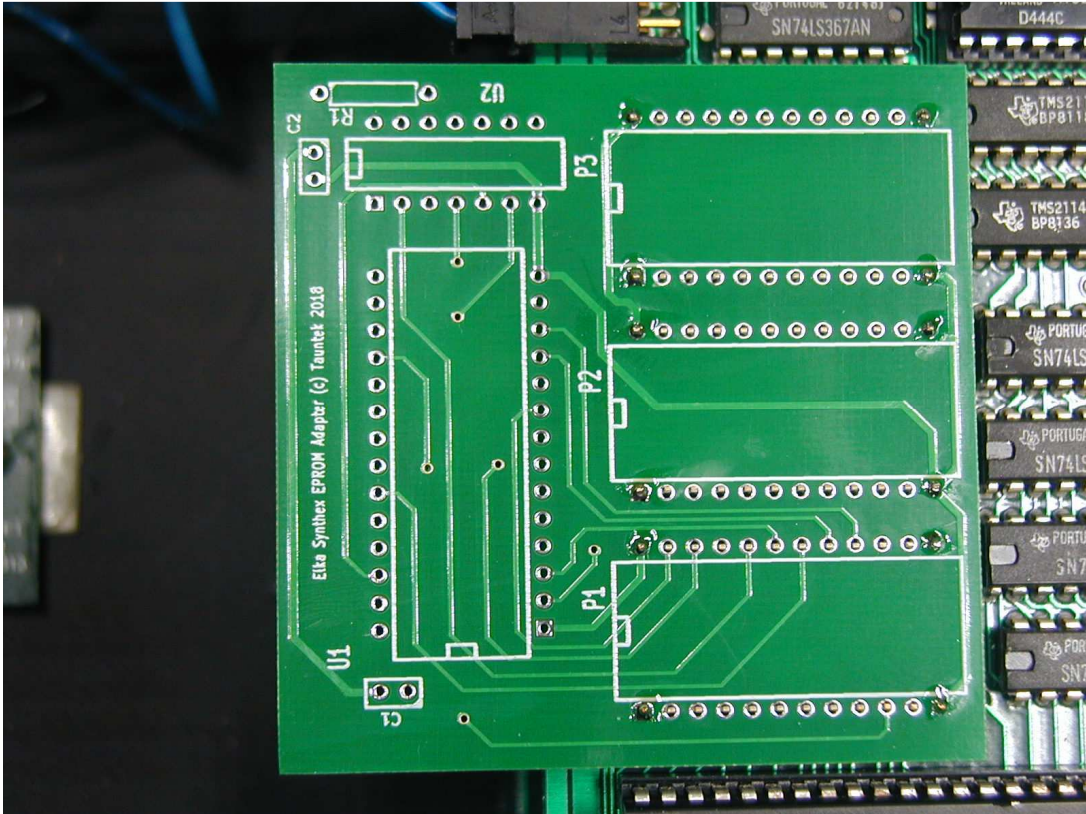
7) Unplug the headers from the CPU board.   You can pry carefully under the right edge of the board against the tops of IC chips, and then pull up on the left end of the board with your hand, but do this gently. There are some traces on the bottom of the board next to the right edge, so you need to be careful when prying to avoid damaging them. You want to bring the board straight up if possible, to avoid bending the corner header pins. Check the header pins once the board is free to insure that no pins are bent.

8) Install the two remaining IC sockets, two 0.1 uF (104) capacitors, and the 2.2K resistor.   The resistor supplied may be a 1% type, or a 5% type.   Either one is fine for this application. The IC sockets have a notch in one end, which should match the indication on the silkscreen.

9) Place the 27C256 EPROM and the 74LS21 in their sockets, being careful not to bend any pins under the chips. The notch on the chip must match the indication on the pcb silkscreen.

10) Place the board with the headers sitting on the EPROM sockets. Check to be sure that the pins are in their proper positions, and not offset by one.   Press firmly on the pcb above the three headers, one at a time, to push the pins into the sockets. Push one in part way, then another to match it, then the third, then the first, etc, to keep the board close to level while you are pushing it in. Don't push one header all the way in first, as that will bend the header pins, since the board will be at an angle. The headers should hold the board firmly in place. I guess a small piece of double-stick foam could be placed between each IC socket and header to provide extra anchoring, but probably that is not necessary. The 27C256 can be changed easily without removing the pcb, if necessary.