



Installation Procedure for Tek 21/31 Calculator LED Display Board

WARNING — ELECTRICAL HAZARD

Before opening the instrument, disconnect it from the AC power source and allow sufficient time for internal capacitors to discharge. Hazardous voltages may be present inside the instrument, even when the power switch is OFF. Service should be performed only by qualified personnel familiar with electrical safety procedures. Do not operate the instrument with protective covers removed unless specifically required for servicing.

CAUTION

Circuit boards contain delicate electronic components which may be damaged by static electricity. Handle circuit boards by their edges and avoid touching component leads or connector contacts. Place removed boards on a clean, non-conductive surface.

TekWiki has the service manuals on-line if you should need to consult them.

<https://w140.com/tekwiki/wiki/31>

The original display board has neon gas discharge displays with a life expectancy of 10 years. Now after 50+ years, their ionization voltage has increased and they may not light up at turn-on. These displays are difficult to find and/or replace. This new board will also address any indicator lamp failures or problems with the 20+ “glue” logic integrated circuits.

Tools needed- #1, #2 Posidrive/ or Phillips screw driver tips, *preferably* magnetic so the two #8-32 screws, and multiple washers don't fall down into the calculator! Sticky tape on the tip can also work in a pinch if you are not so equipped.

Disconnect the calculator from the power source.

Remove the top cover plate as follows:

1. Unscrew two outermost top #6-32 screws on the back panel.
2. Release the top cover plate by springing out the front most vertical side surfaces of the top cover plate while lifting upwards. There are 1/8” metal bumps that rest in slots on the calculator that need to clear the slot.

Remove PCB as follows:

3. Remove the keyboard by unscrewing the two outer most #8-32 screws holding down the black keyboard brackets to the module support bar.

Gently lift up on the keyboard and push it toward the back of the calculator (the front of the keyboard fits into a groove on the base of the calculator). Place the keyboard upside down on the right side of the calculator. The display cable and connector are not “keyed”. Mark the ribbon cable connector with a dot to indicate the pin 1 end. The new black connector has a black arrow that needs to orient on the same end as the just marked dot.

Now pull off the display ribbon cable, unplug the single red wire from the power supply board, remove four #4-40 board mounting screws. Install the new board using two of the shorter screws. Use the mounting/ grounding hole closest to the edge connector, and the upper mounting/ grounding hole on the opposite side of the board. The clear plastic board cover, long screws, and insulating washers are no longer needed as the new board does not use the high voltage supply.

Reassemble as follows:

4. Reassemble in reverse order. Neatly tuck and fold the ribbon cables back in place so they don’t get pinched when the keyboard is reinstalled.
5. Make sure the printer paper, PAPER FEED, and ON buttons protrude back through the top cover as you are reinstalling it and the attaching mounts are on the inside of the rear panel.

A B C D E

1

1

2

2

3

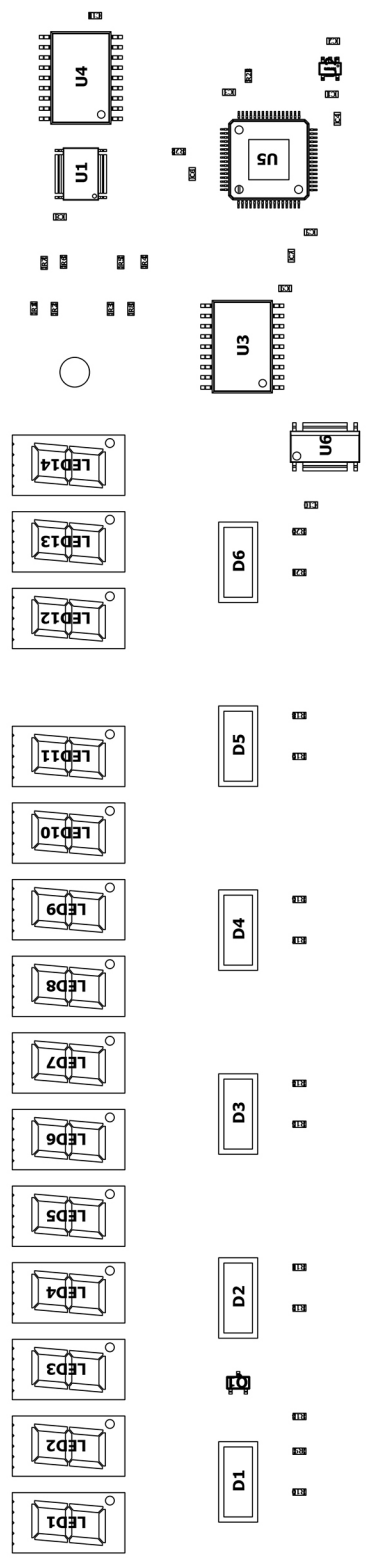
3

4

4

A B C D E

View from Top side (Scale 1.6:1)



TEK 31/21 DISPLAY BOARD

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