

# IT'S NOT YOUR MOTHER'S CALCULATOR!

Terra Texas Instruments Online Challenge

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# Preface

**Calculators have been an integral part of many math classes to help students quickly preform calculations for years.**

My mother and I both used Texas Instruments while we were in high school. However, the TI-30X IIS, which I used, is very different from the TI-55, which my mother used.

In this project I took apart both Texas Instruments calculators so to see what the differences between the two of them were due to advances over time.

I wanted to see why mine was Not My Mother's Calculator.

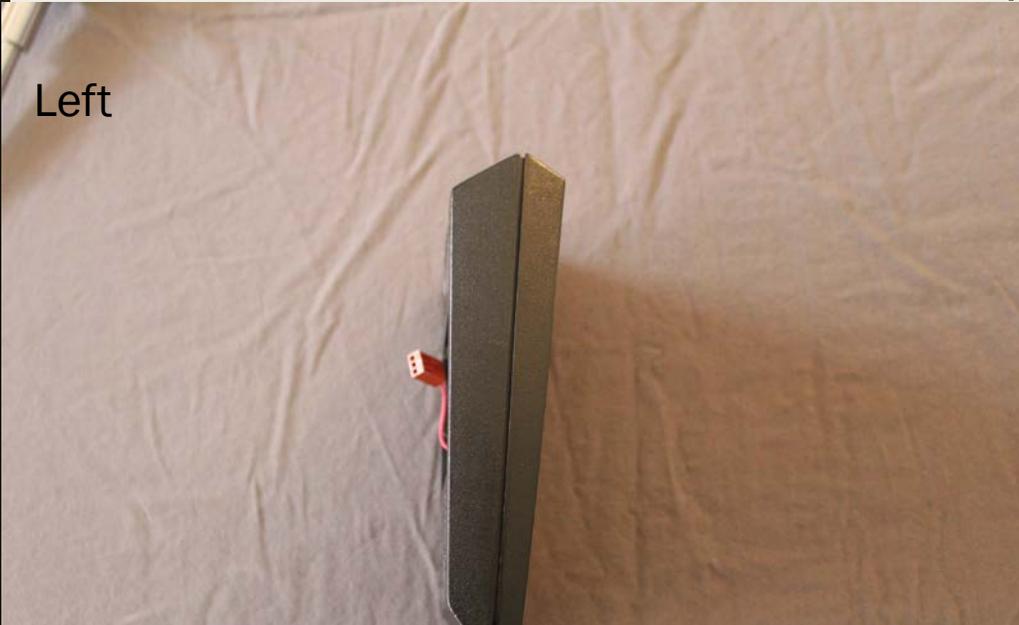
My TI: TI-30X IIS

My Mother's TI: TI-55

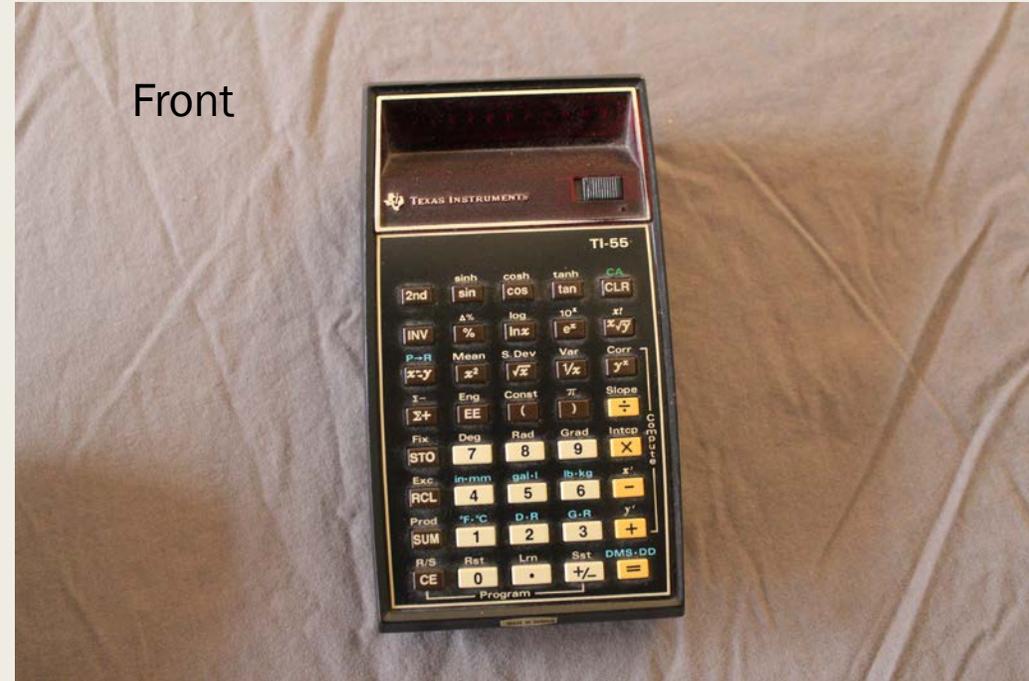


# Exterior of the TI-55, My Mother's Calculator

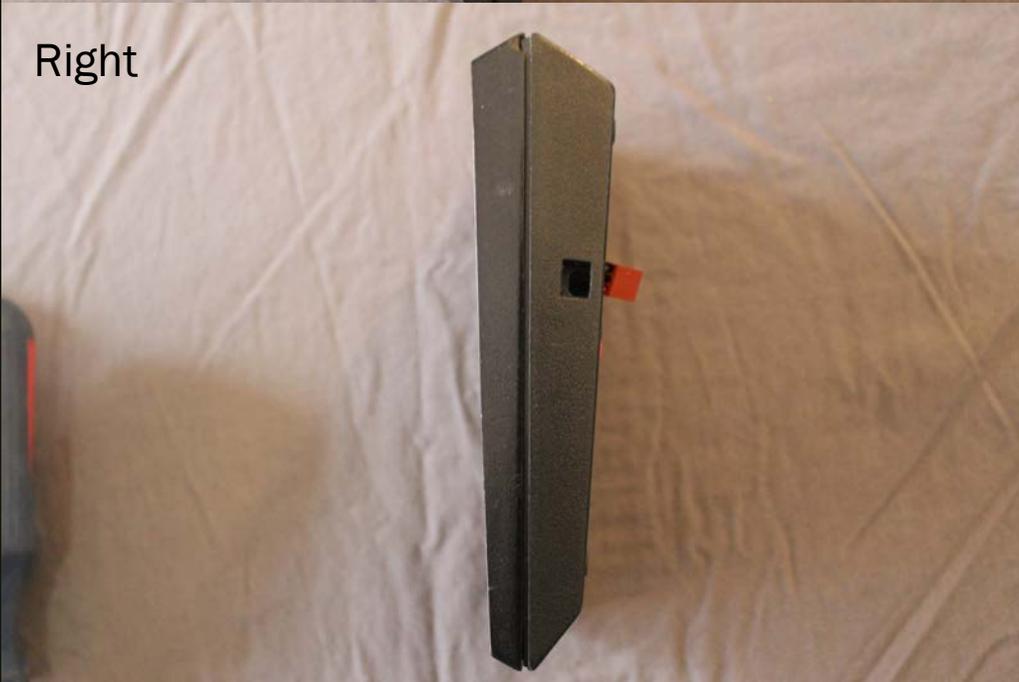
Left



Front



Right



Back

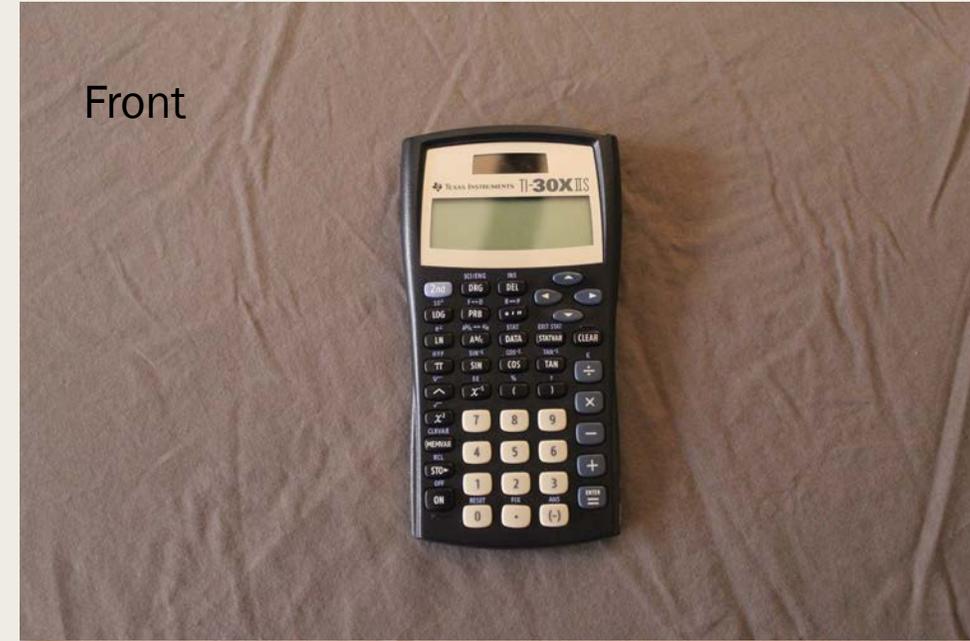


# Exterior of the TI-30X IIS, My Calculator

Left



Front



Right

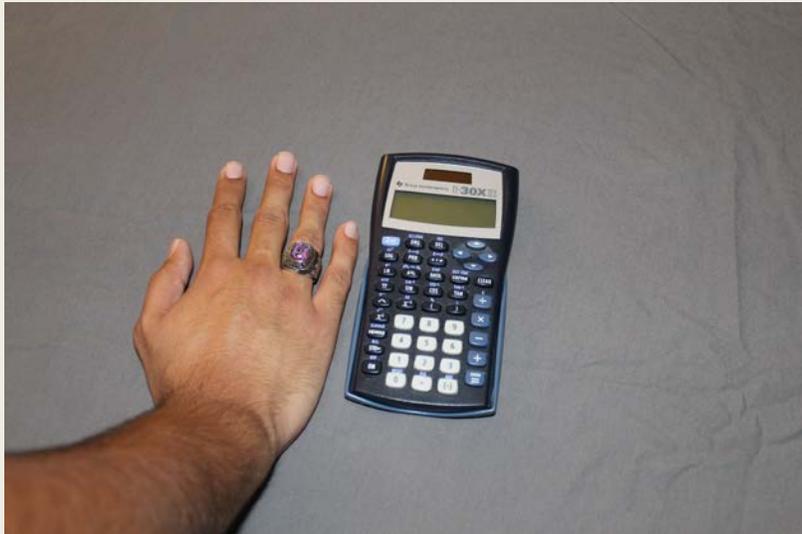


Back

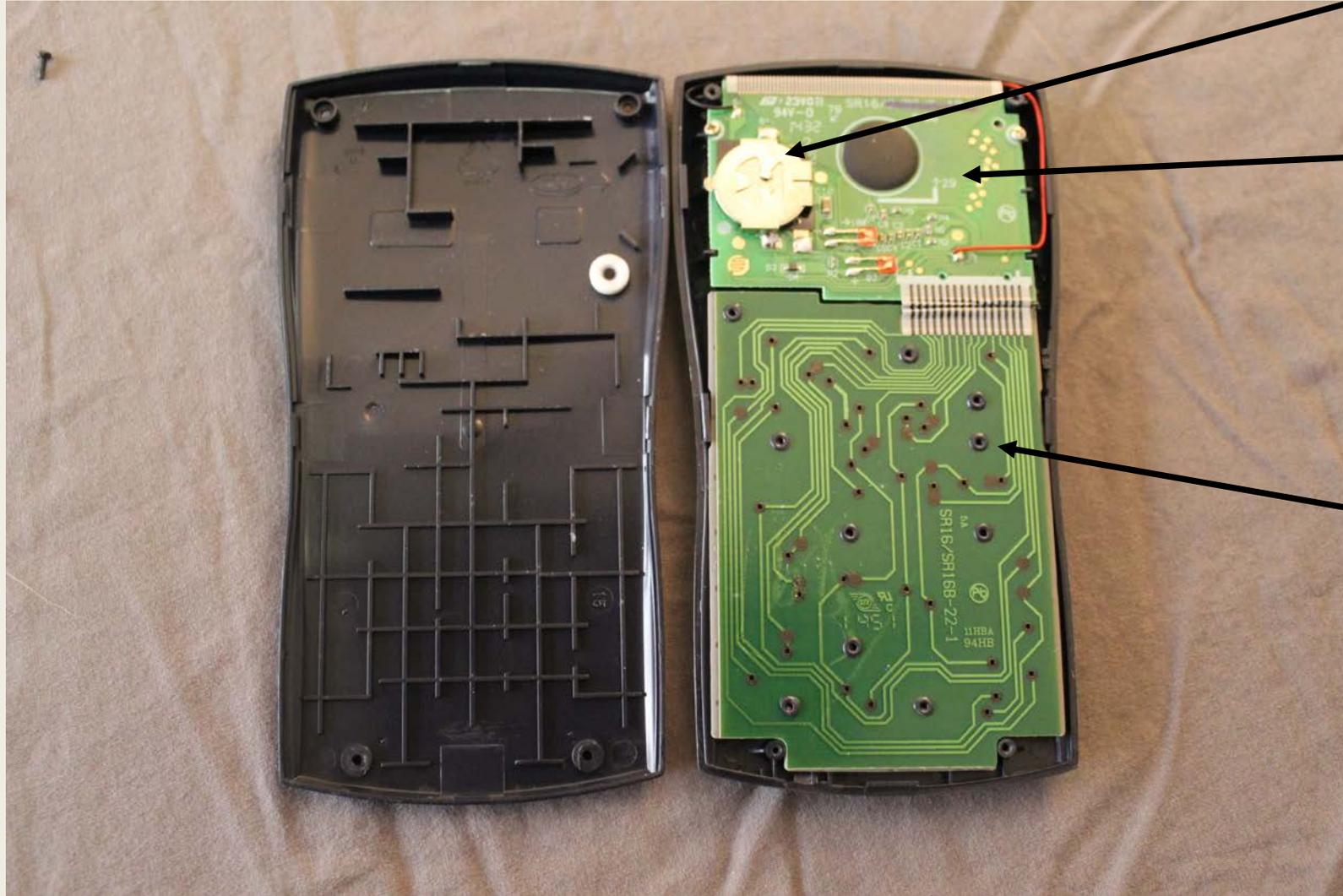


My TI-30X IIS

My Mother's TI-55



# My Calculator with back removed



Battery :  
connected to  
solar panel in  
front

Circuit Board:  
holds the  
processing  
chips, and  
holds the  
keyboard  
membrane in  
place

Rivets:  
holding the  
keyboard  
backing in  
place

# My Mother's Calculator with back removed

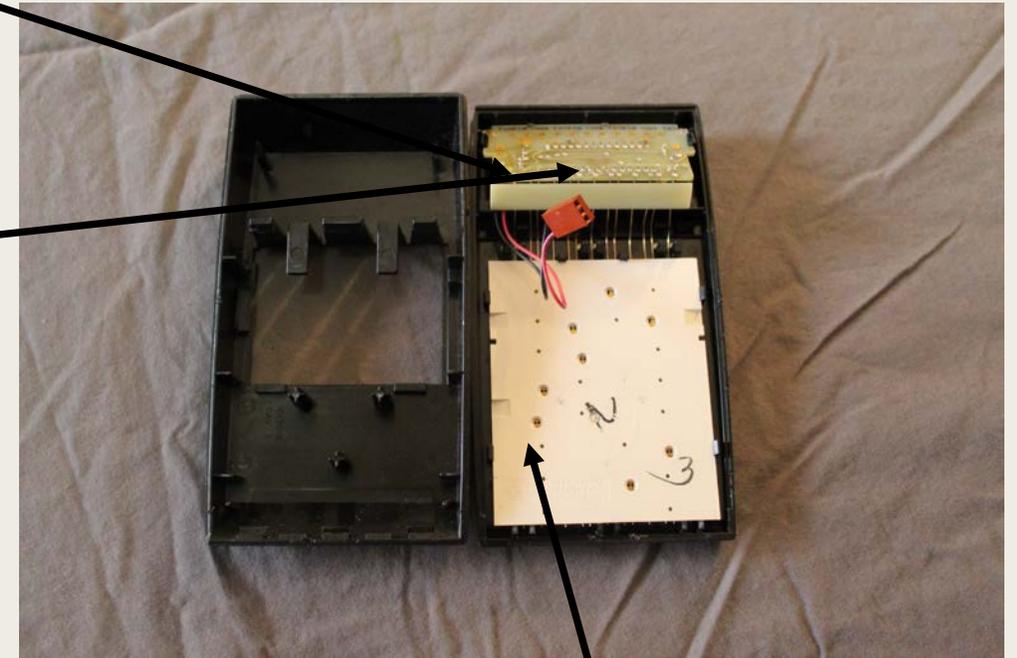


Screen showing numbers

Keypad

Battery  
Cable

Circuit  
board



Plastic Board: Holds keyboard membrane in place

# Both Calculators with backs removed

TI-30X IIS



TI-55

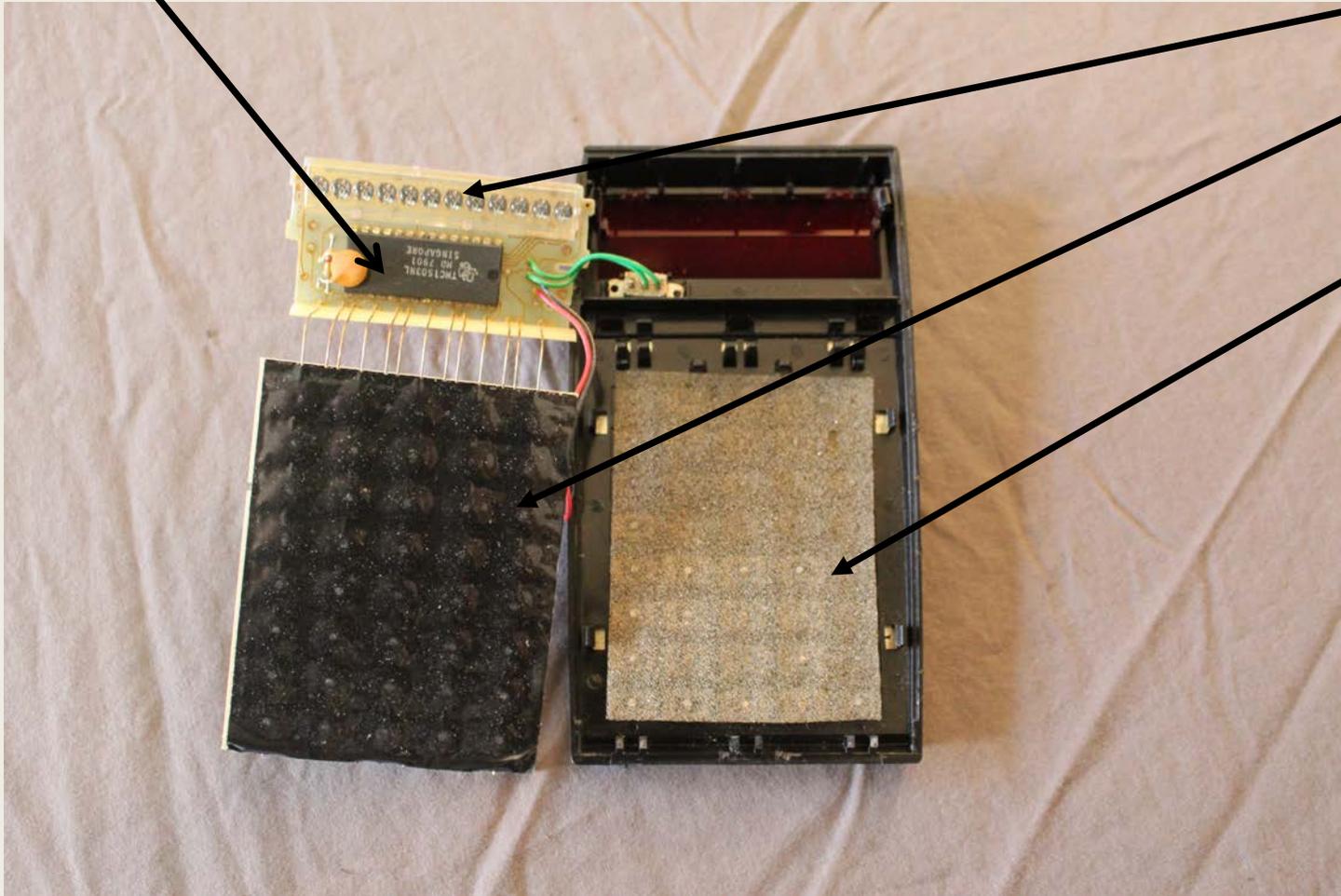
# Back unscrewed of my mother's calculator

Microprocessors which handle computations

LED (Light-emitting diode) Display

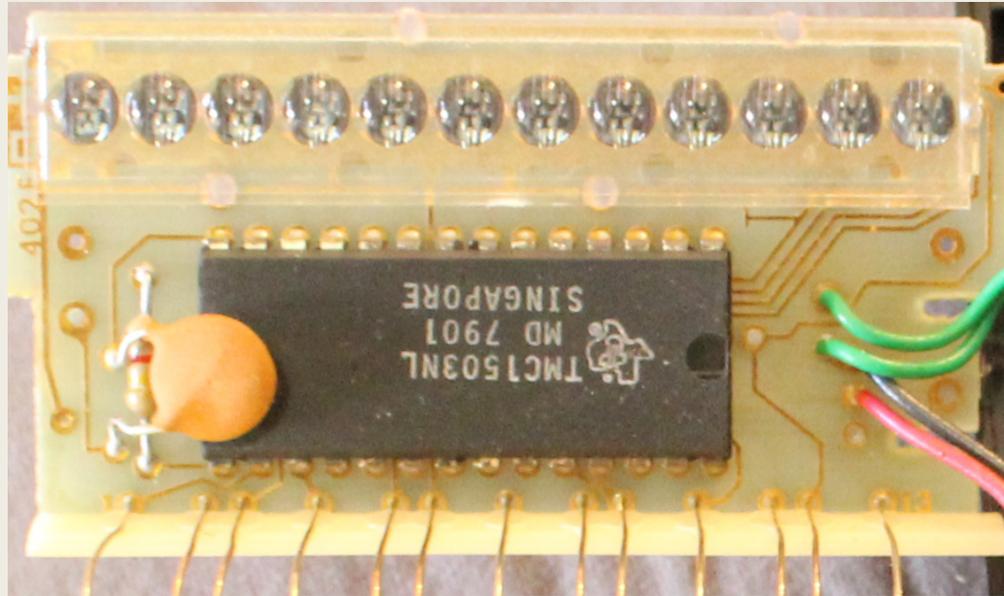
Keyboard membrane: registers  
keystrokes

Keypad and covering

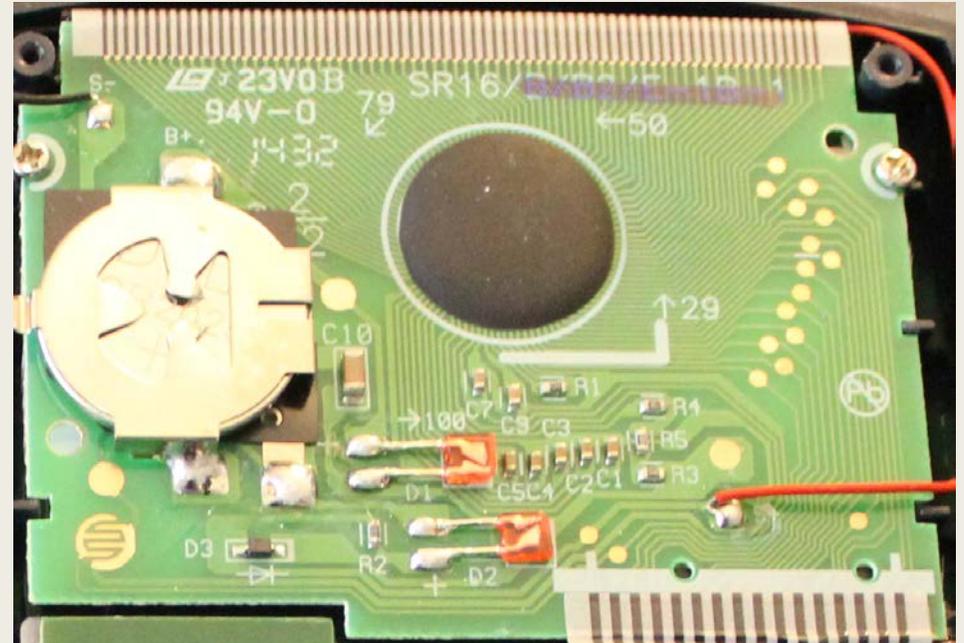


# Circuit Boards of Both Calculators

TI-55



TI-30X IIS



# Final Report

The TI-55 was the state of the art scientific calculator in the late 1970s. The TI-55 was widely used by high school and college students at the time. The TI-30X IIS is what could be considered the equivalent today in computational power and wide spread usage. I have obtained an example of each calculator to examine and compare both and I anticipate to the TI-30X IIS to illustrate the development expected after decades of change and progress.

When I began this project I expected the TI-55 to have many individual components and the calculator keys to be individual buttons. I was surprised to see, that in the older calculator the circuit board was approximately the same size as in the newer calculator. Like the TI-30X IIS, the TI-55 had a keyboard membrane instead of individual mechanical buttons. I had assumed that the membrane would not be present in the older calculator.

When comparing my mother's and my calculators I observed that there have been changes, both ascetically and functionally. While disassembling the newer TI-30X IIS, the presence of rivets was unexpected. TI-55, which was disassembled first, had screws that held the keyboard backing in place instead of rivets. This difference between the two of them marked one of the biggest changes that can be readily observed between the two machines.

The keypad on TI-30X IIS is much larger than the one in the TI-55, with additional keys for input. The TI-30X IIS has an internal solar powered battery, while the TI-55 has a removable, rechargeable nickel-cadmium battery.

However, the most important and discernible difference was the more sophisticated circuit board in the TI-30X IIS in order to handle increasingly diverse and intricate calculations/functions.

Yet there are things that have stayed the same between both models such as the keyboard membrane and the position of most of the keys. Though there have been changes between my mother's and my calculators there are many internal similarities and hallmarks that yet remain similar between the two.