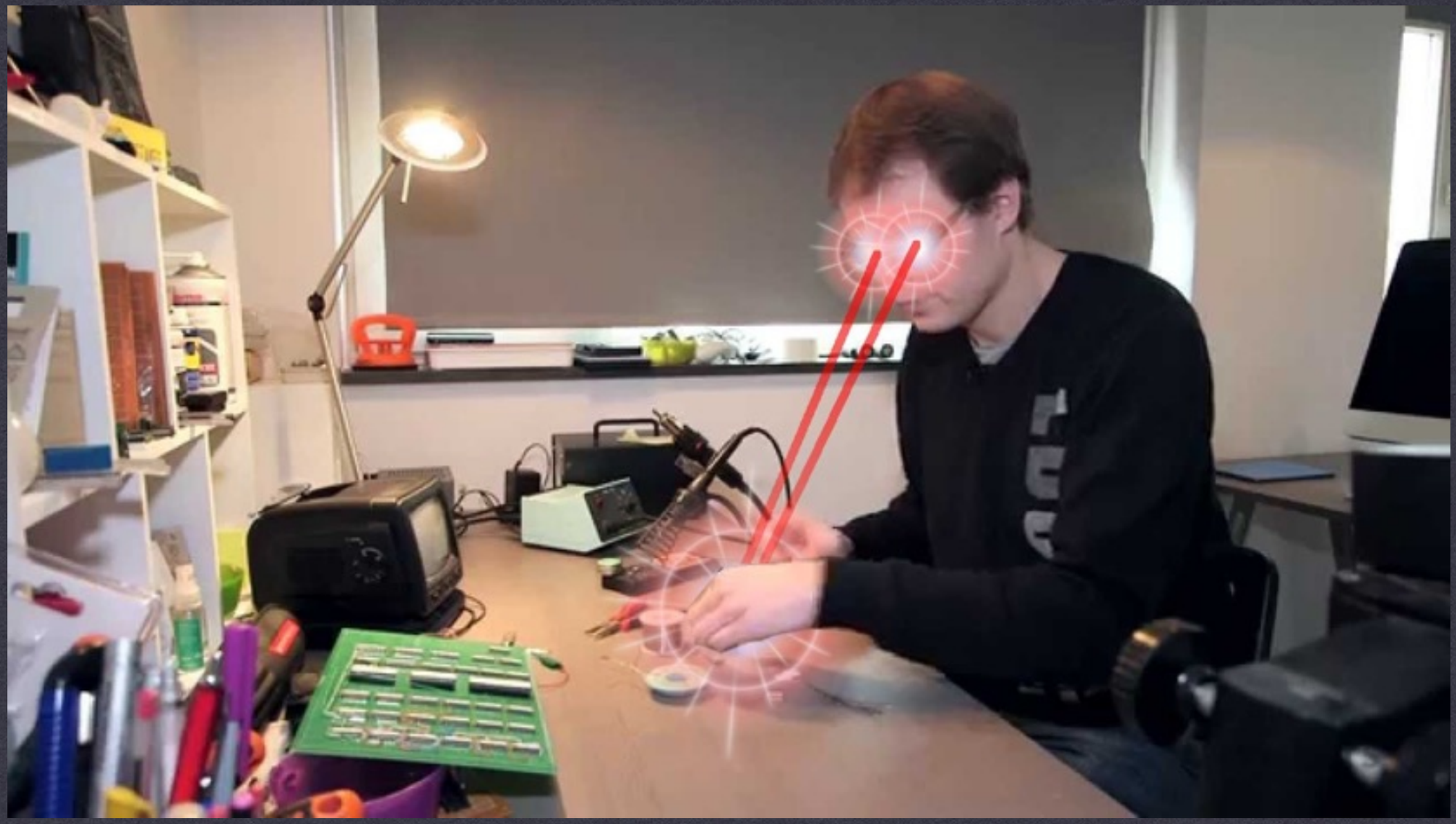


CAN WE FIX IT?

SEBASTIUS, HACKER HOTEL 2016

About me

- Sebastian Oort
- Teacher by day
- Self taught hacker/fixer
- Love retro-hardware

PROJECT

CAN WE FIX IT?

4 PRACTICAL REPAIRS FOR EVERYONE

DATUM **APRIL 2, 2016**

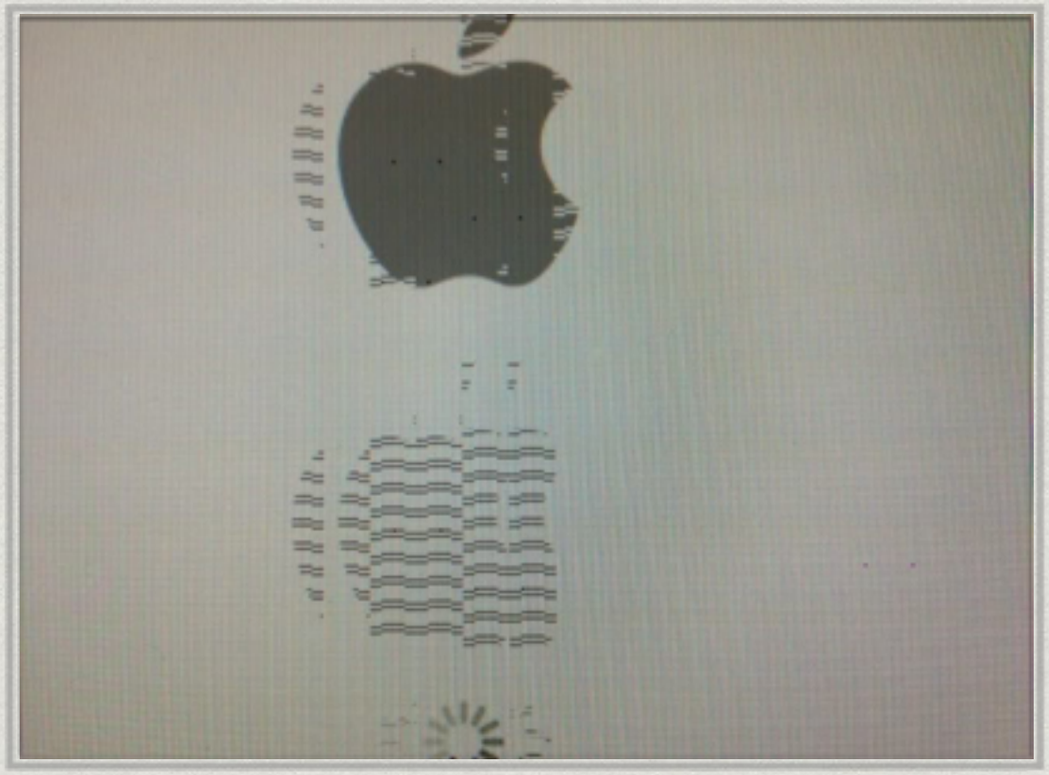
KLANT **HACKER HOTEL**

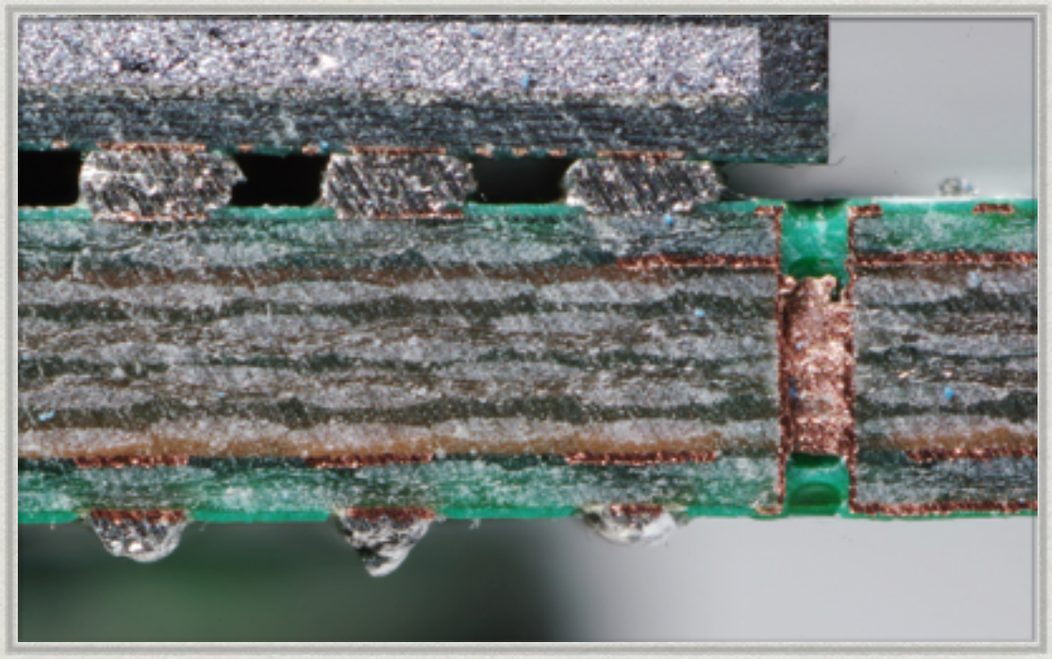
REFLOW

BAKE ~~COOKIES AND~~ BGA'S

Why do we reflow?

- Bad GPU's and other chips
  - Board connection
  - Die-carrier connection
- Relatively easy replace QFN packages and other SMT stuff





TOOLS REQUIRED AND RECOMMENDED

MY SETUP BEFORE I BOUGHT A PREHEATER

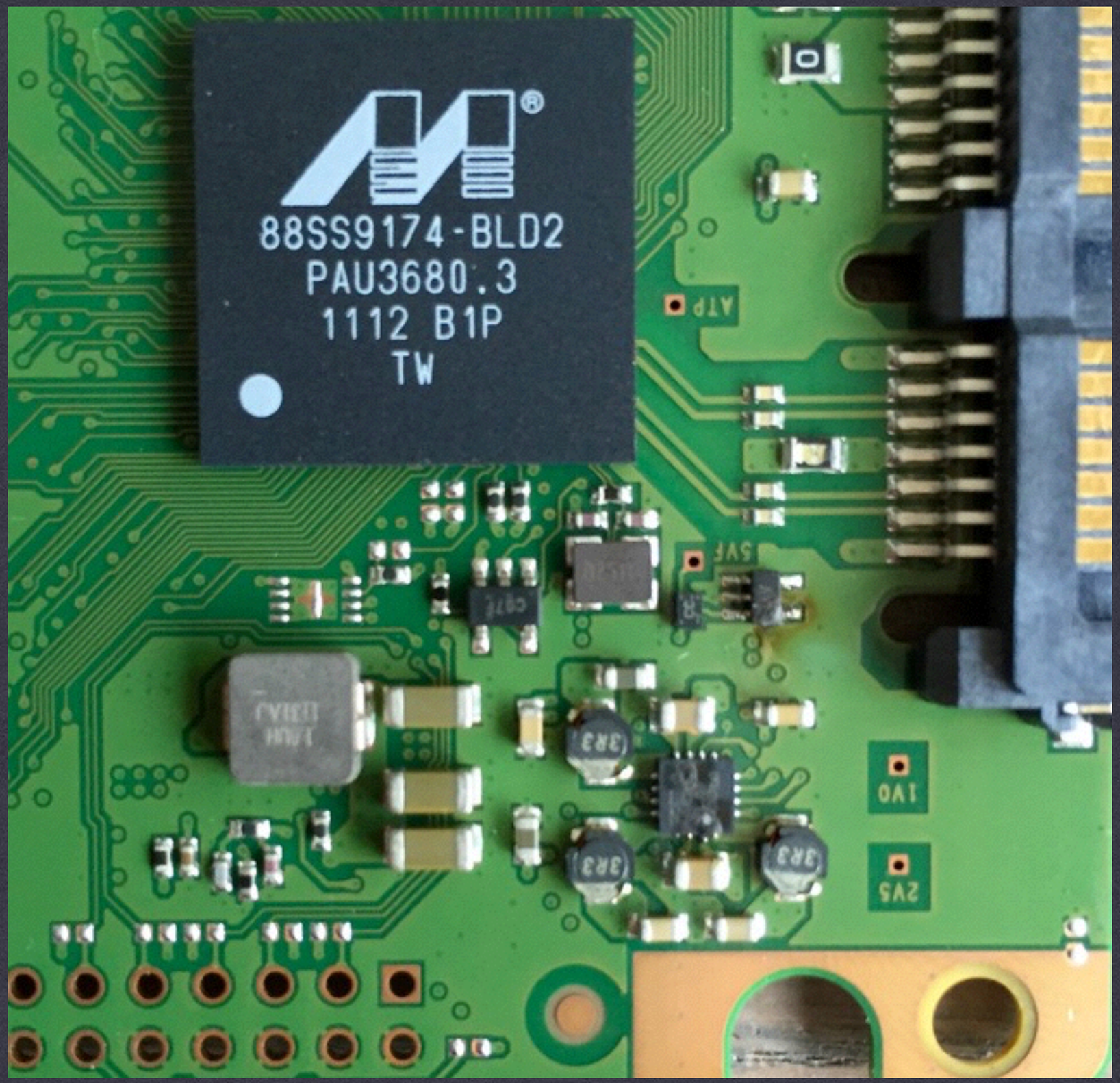
Reflow profile

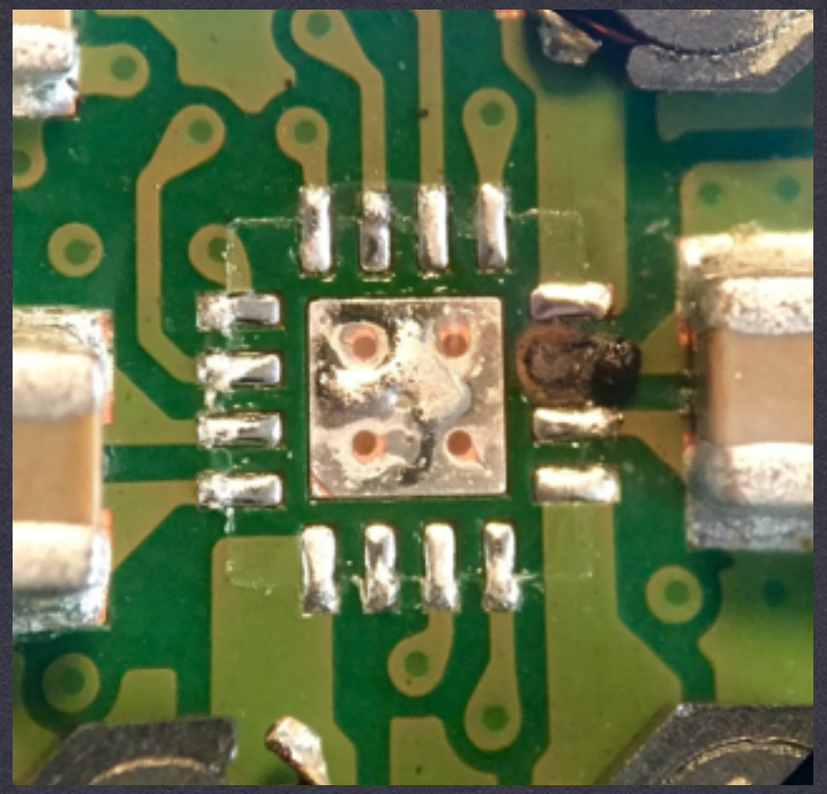
- Preheat at 150℃ for 3 mins
- Soak at 230 for 1.5 mins
- Peak at 350 for 45 secs
- Soak at 230 for 1.5 mins
- Cool at 150 for 3 mins
- Cooldown for at least 15 minutes!

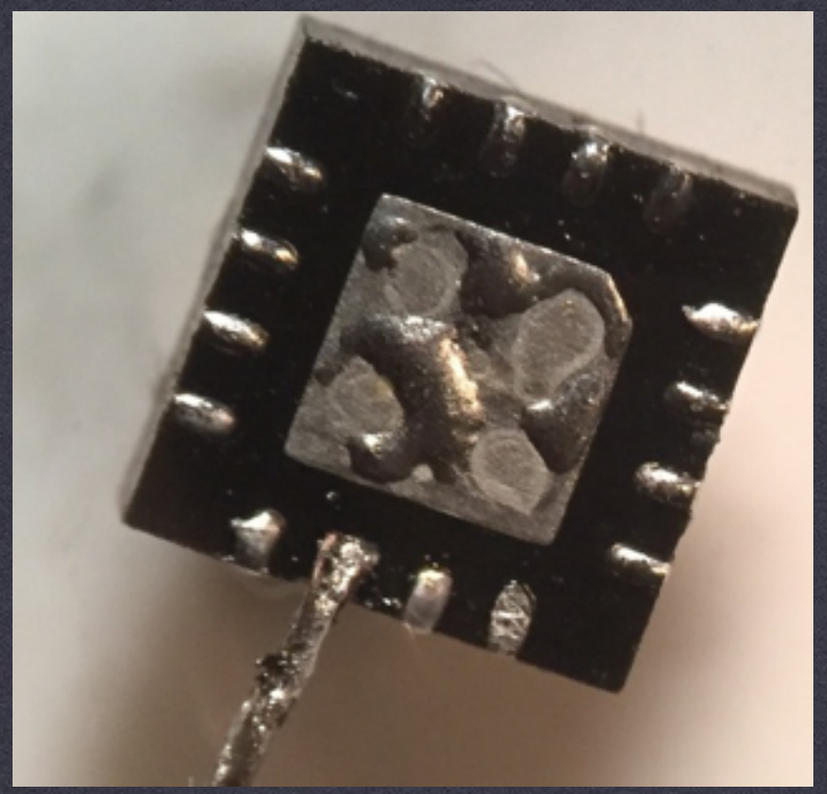
Ikea FORSÅ (seriously!)

Top Tips

- Aluminium and Kapton tape are your friends
- Flux should be your BFF
- Reflow profile is up for experimentation
- Stuff is hot!







A BIT MORE ADVANCED HOT AIR REWORK

PROJECT

CAN WE FIX IT?

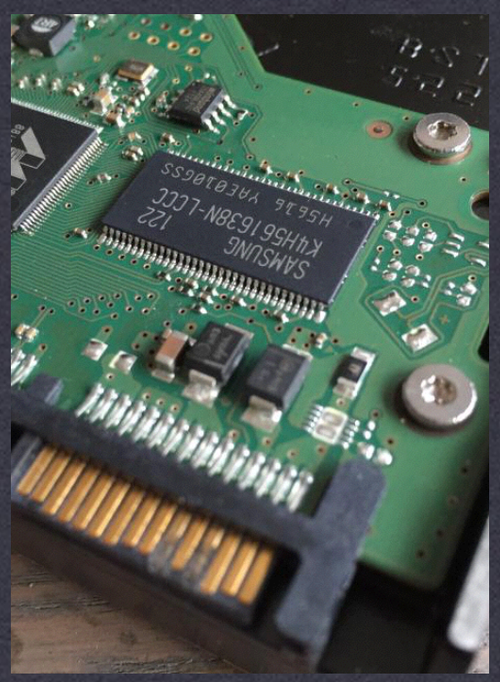
6 PRACTICAL REPAIRS FOR EVERYONE

DATUM **APRIL 2, 2016**

KLANT **HACKER HOTEL**

DEAD DATA

QUICK HARDDRIVE FIX



PROJECT

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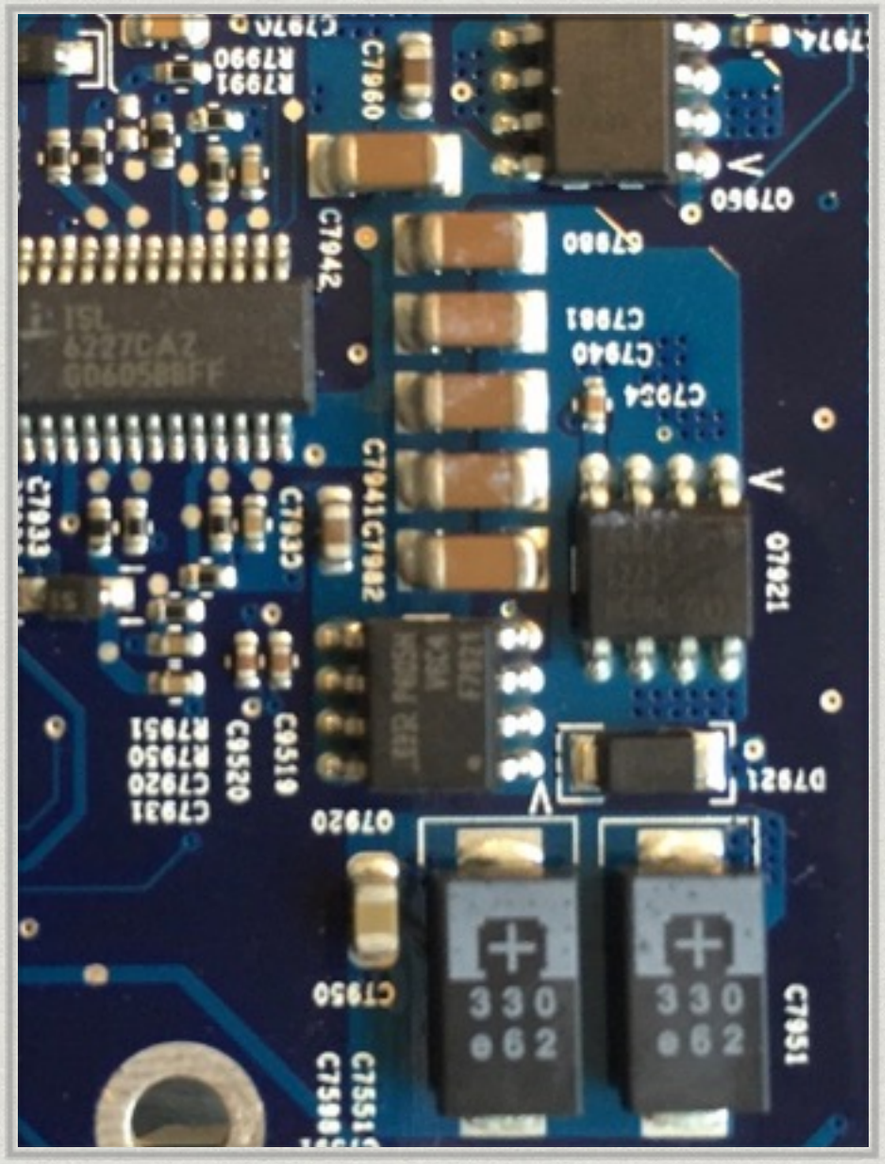
KLANT **HACKER HOTEL**

CAPACITORS

BOOM!

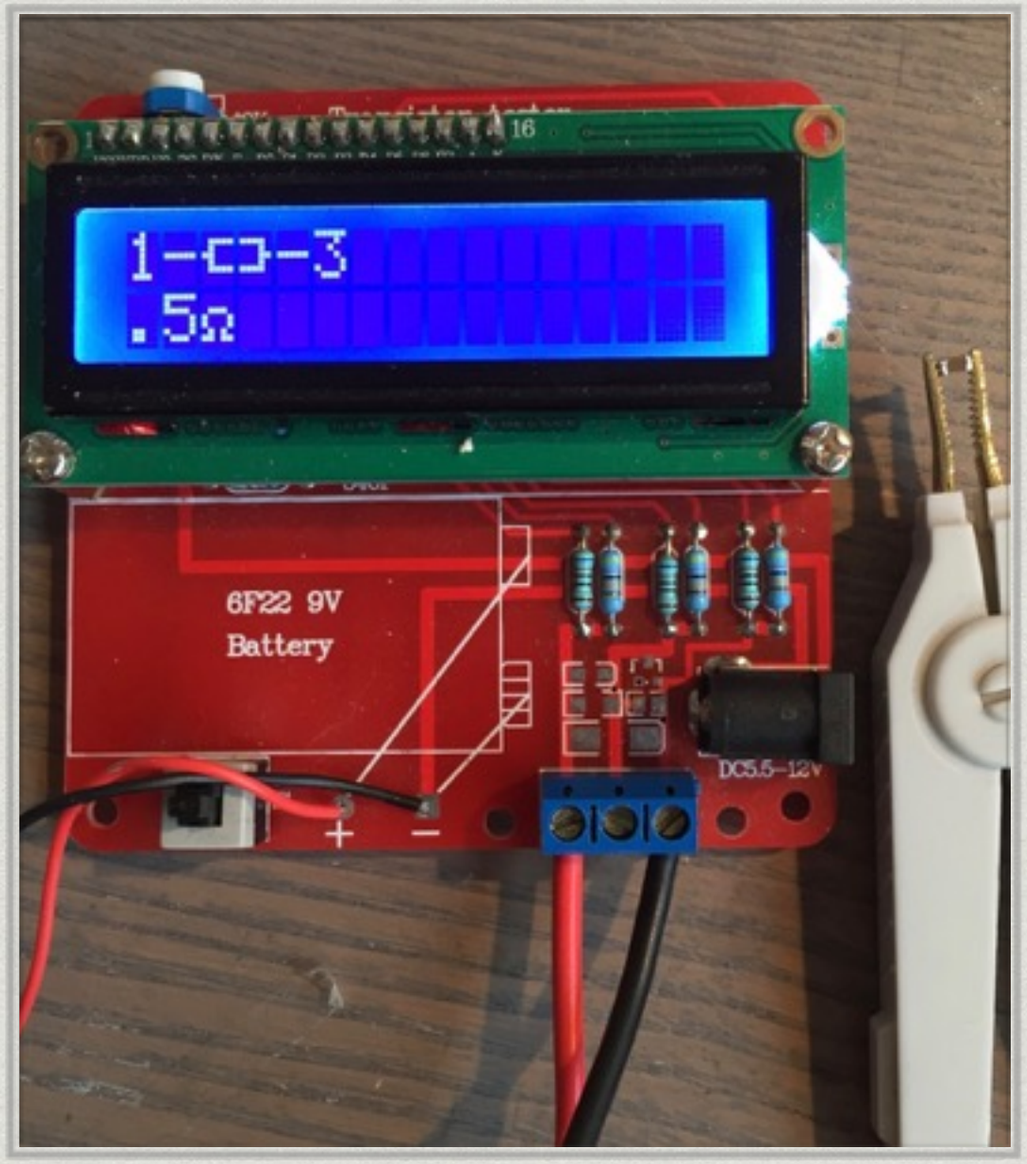
Symptoms

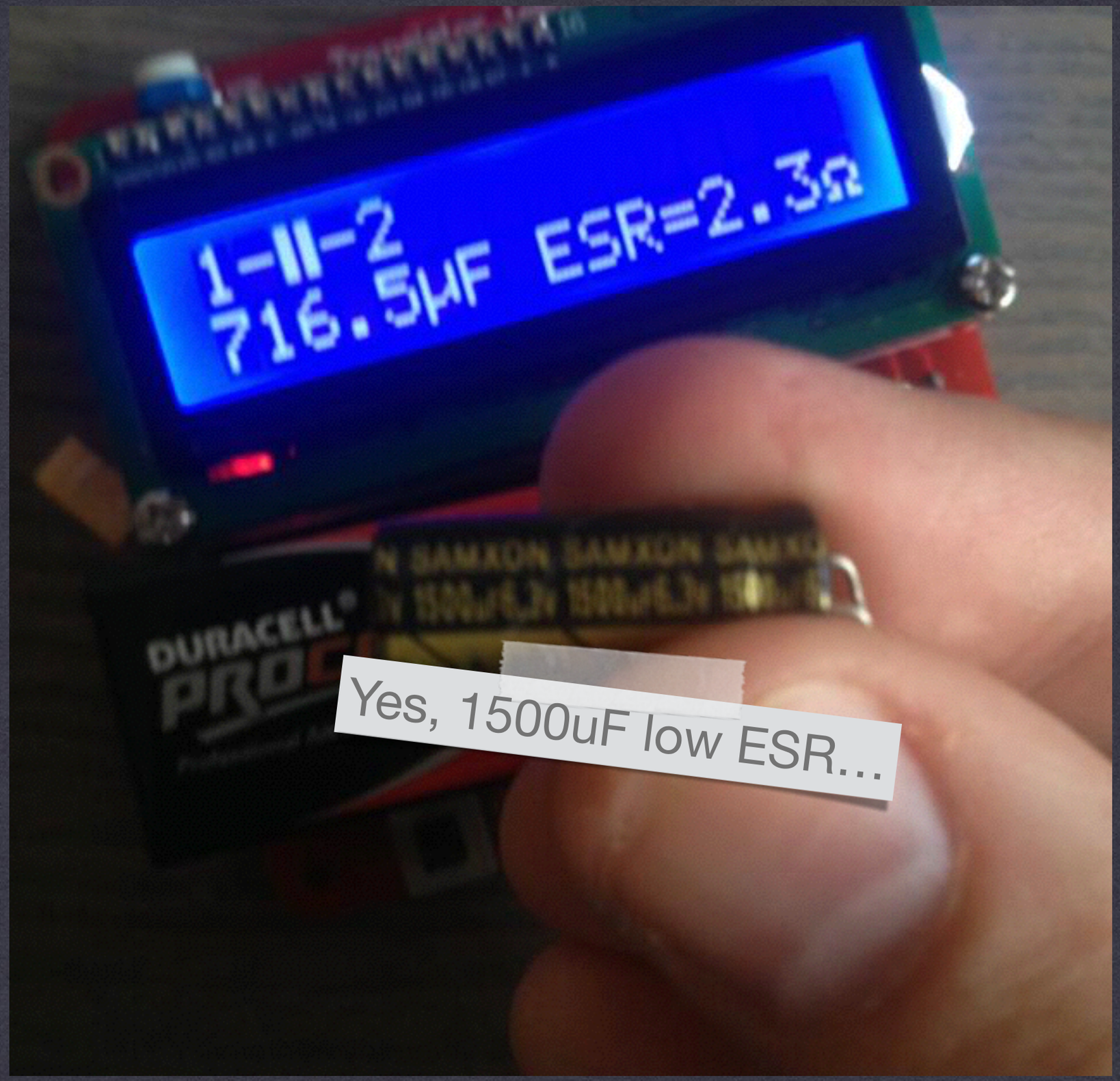
- PSU not starting or just weird
- Bulging or leaking capacitors
- Power rails on board shorted or not up to standard
- AD-Conversion offset

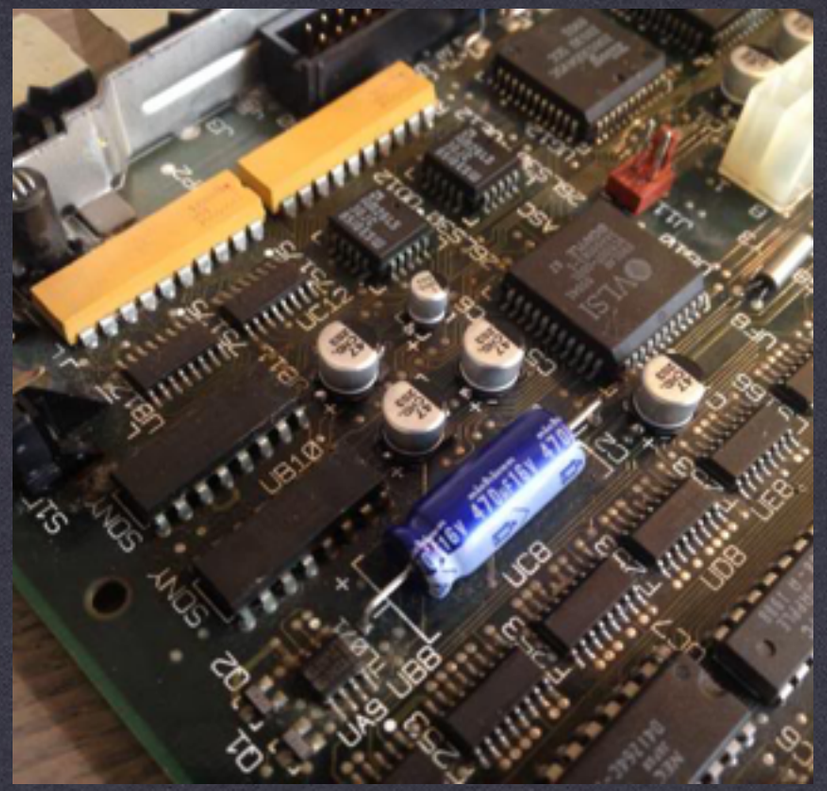


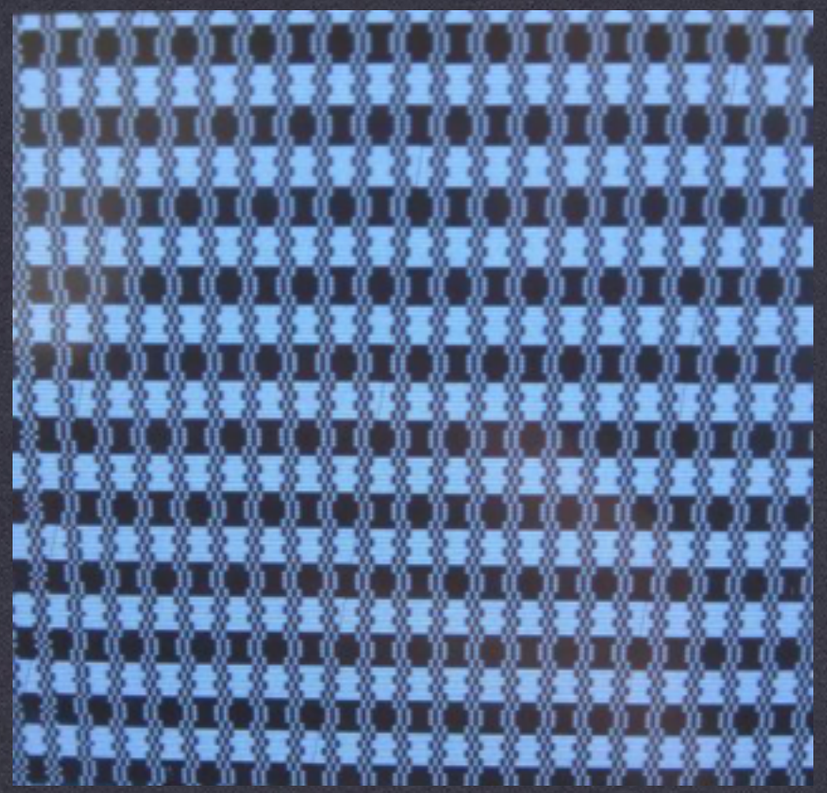
Get this kit

- ESR/Transistor Tester
  - Resistors
  - Capacitors
  - Coils
  - Transistors
  - Diodes/LEDs
  - FETs and more!
- About € 12,- on Ebay/AliExpress
- Open Source HW/SW!




1-II-2
716.5μF ESR=2.3Ω
DURACELL
Yes, 1500uF low ESR…





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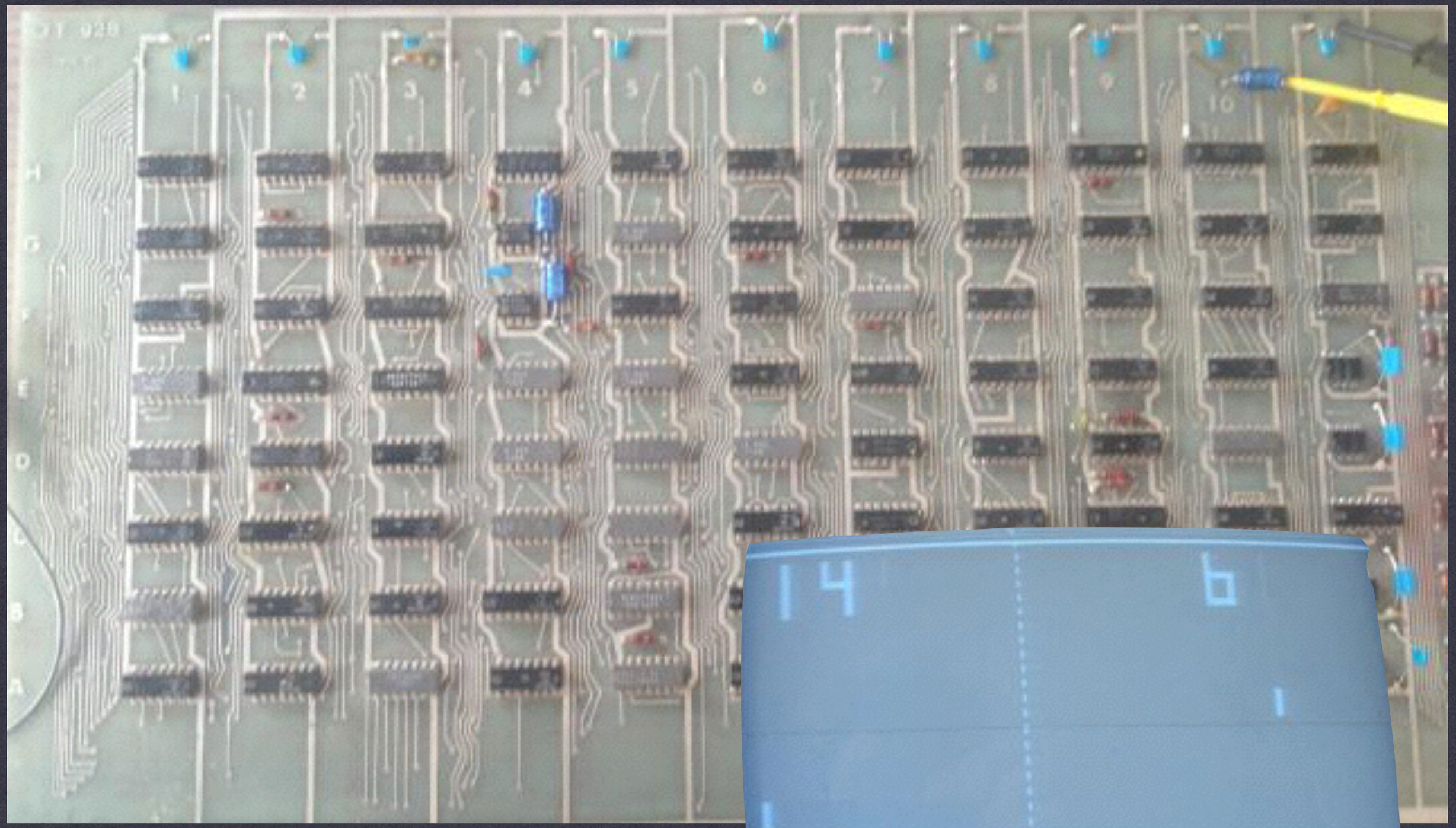
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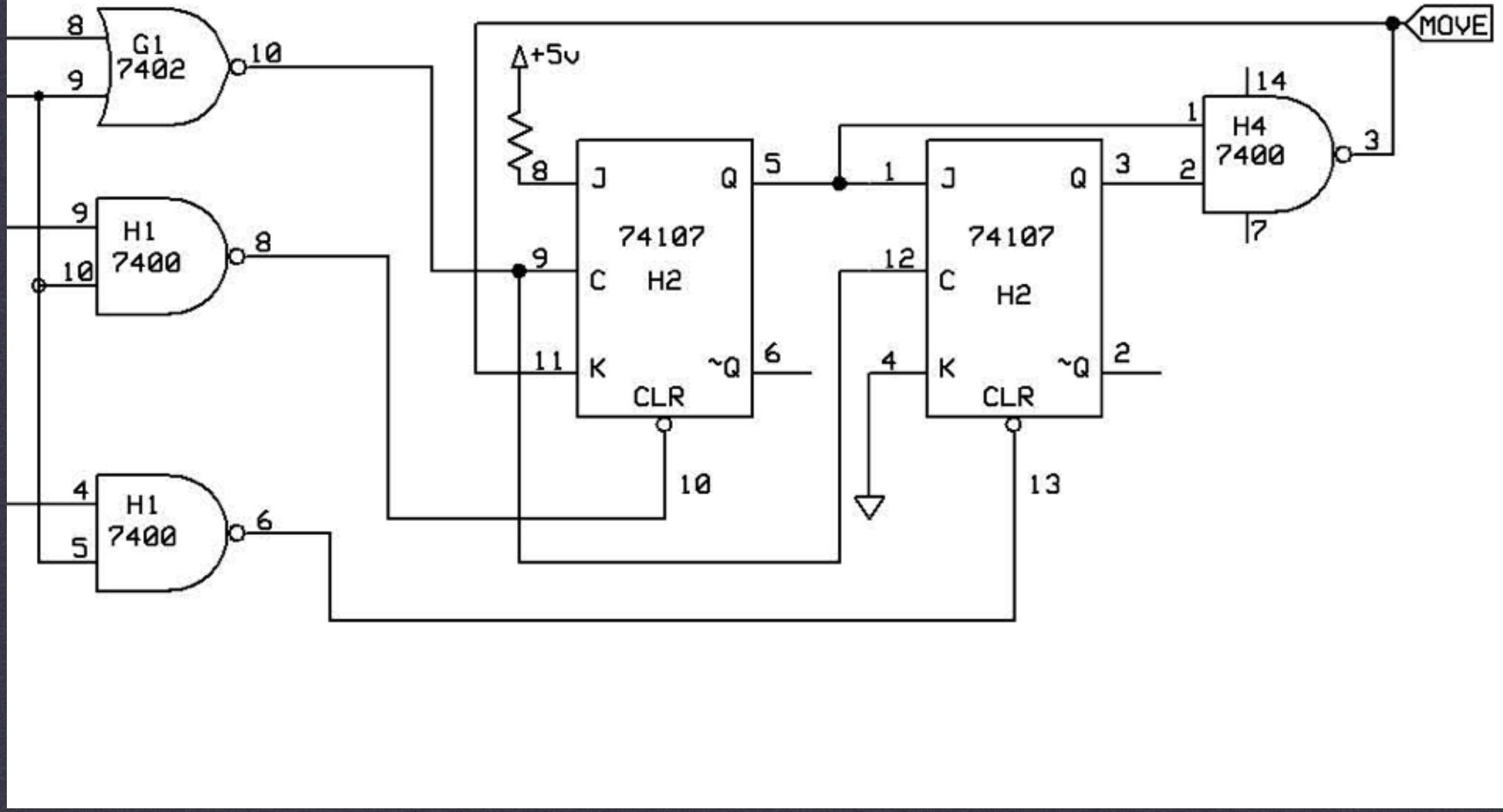
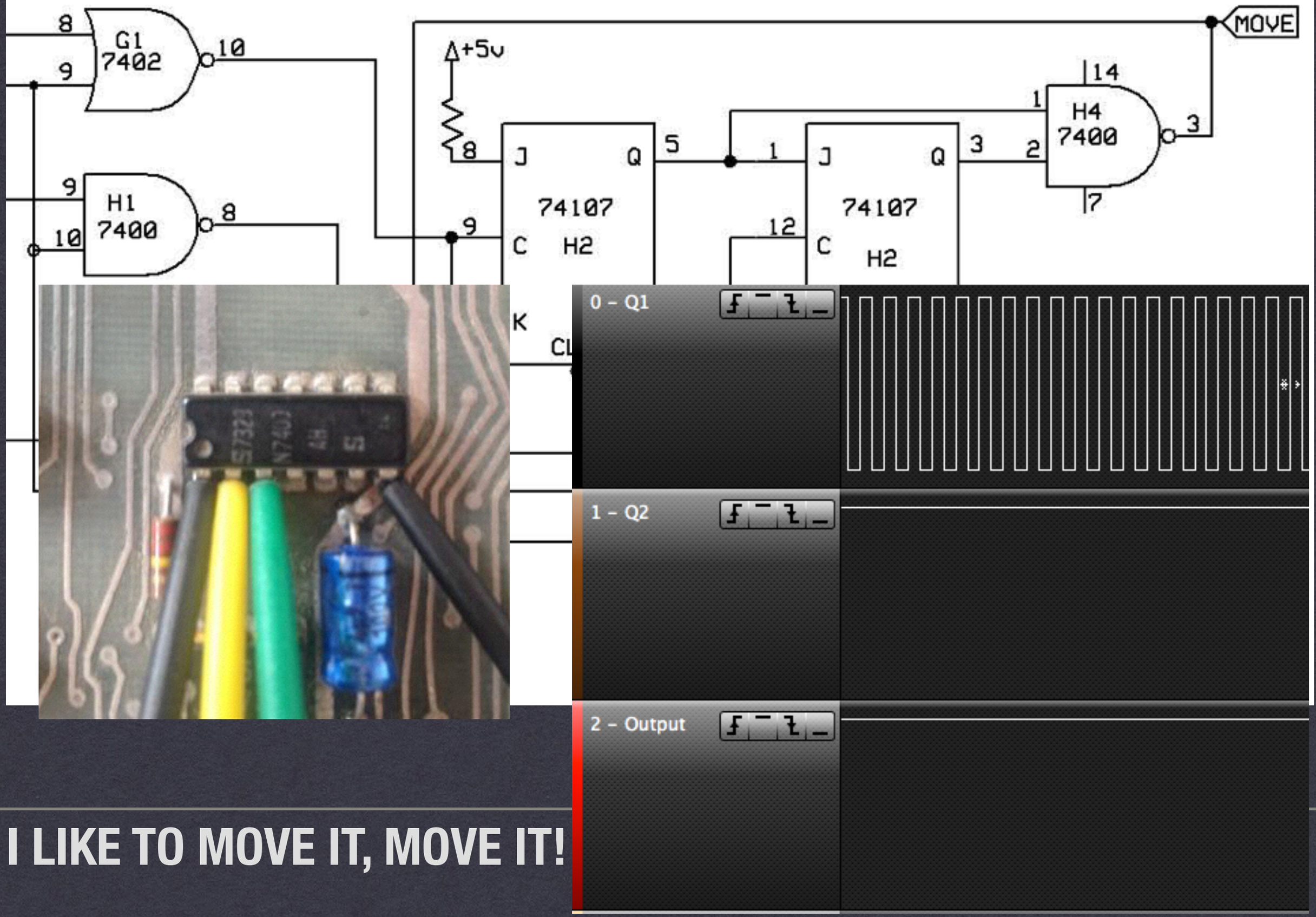


I LIKE TO MOVE IT, MOVE IT!



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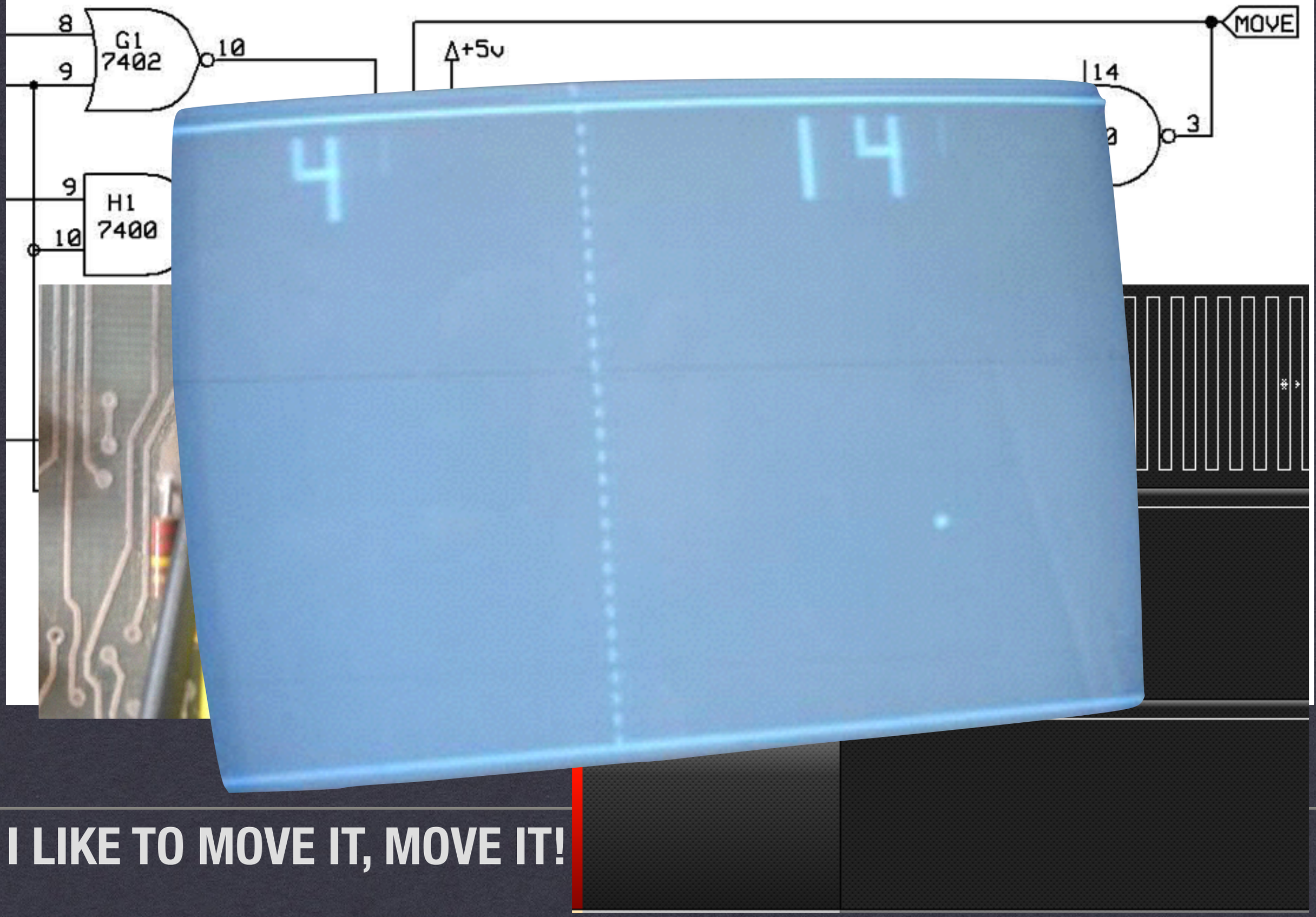

I LIKE TO MOVE IT, MOVE IT!

Closing thoughts

- Most repairs i do are mechanical in nature and are really easy
- Even complex problems can always be traced back to a root cause
- The older, the more difficult to diagnose but also the easier to repair.