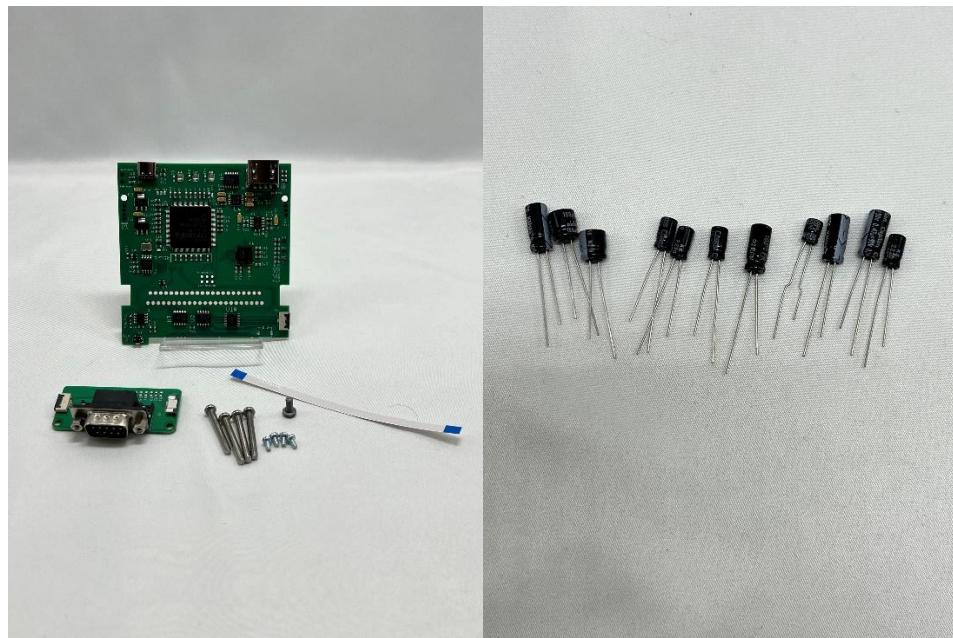




Installation Guide

Gamebox Systems, LLC

Author: Postman



GGHD Kit Contents

- GGHD PCB
- Genesis controller PCB
- 9 pin FFC flex cable
- 4x 25mm M3 screws
- 4x 4mm M2 screws
- Capacitor replacement kit
- Case parts (Top, middle spacer bracket, bottom, power button plunger)

Required Tools and Parts

- Game Gear console, game, and power source (6x AA batteries or AC adater)

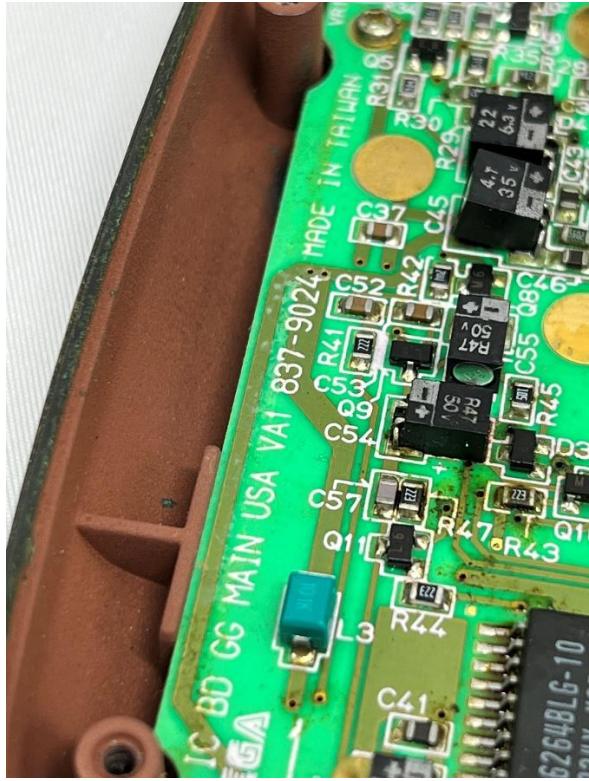
NOTE: a full Game Gear console is highly recommended for testing the recap and required screws from the case (2 case screws are required for final assembly). Game Gear motherboard only can be used on this kit but make **100% it is a working motherboard** before installing the GGHD Kit! Skip to step 5 if you meet this criteria.

- Soldering iron
 - Solder (Lead free or leaded)
 - Phillips size 0 or 1 screwdriver
 - Gamebit security screwdriver
 - Wire (30AWG – 34AWG, single or multistrand)
 - Needle nose pliers
- Desolder tool (Solder pump or copper braid)
- Tooth brush/Q-tip (Optional but recommended)
- Isopropyl Alcohol, 90% (Optional but recommended)

Part I: Game Gear Recap and Functionality Testing

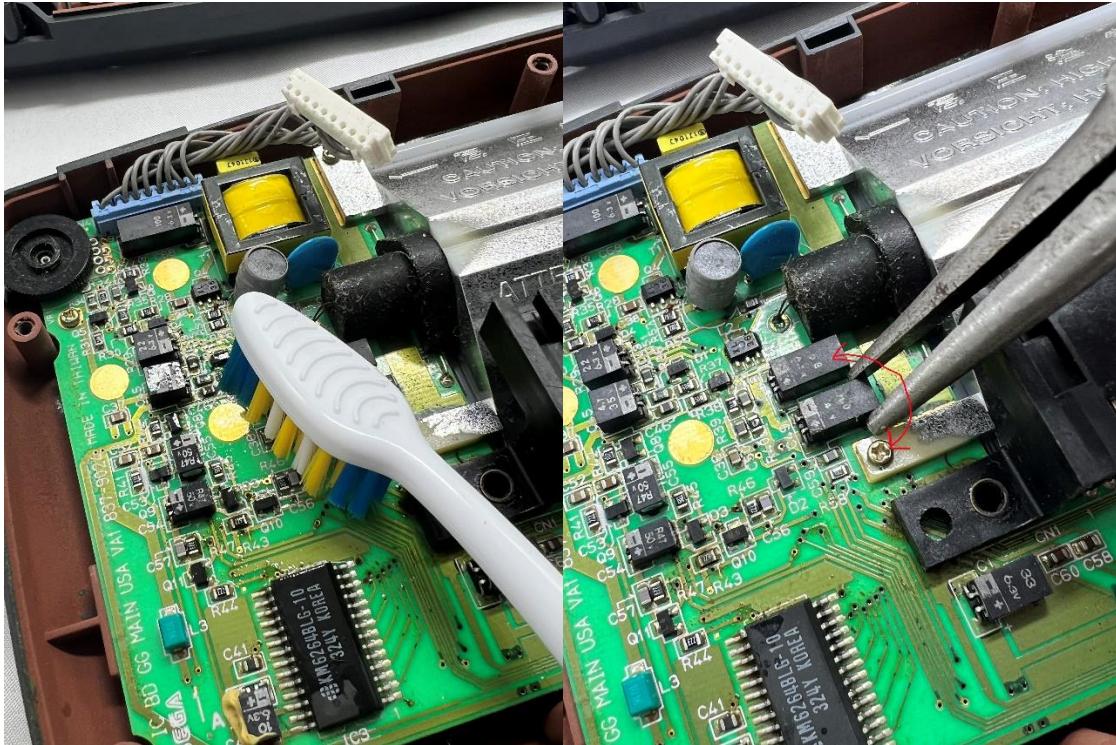


Step 1: Remove the screws on the back of the Game Gear and open the case



Step 2: Ensure your Game Gear is compatible with this mod by finding a silkscreen that says “VA1” when you open the case. If you see “VA1”, continue to step 3.

NOTE: If you **DO NOT** see “VA1” and you see “VA4”, “VA5”, or do not see “VA1” then your Game Gear is **NOT COMPATIBLE** with this version of the hardware. A later hardware revision will include support for these later models.



NOTE: If a recap has been performed and the system is verified 100% working, skip step 3 and move ahead to step 5.

Step 3: Remove cables from power and audio PCBs. Use a tooth brush or Q-tip with isopropyl alcohol to clean any corrosion off the Game Gear motherboard. Once the corrosion is cleaned, use needle nose pliers to grab and **gently** move the capacitors back and forth to break the glue underneath each capacitor.



Step 3 (Cont'd): Remove all capacitors on the back of the motherboard and replace all capacitors on the motherboard and the power PCB. Recap locations and values can be found [HERE](#).

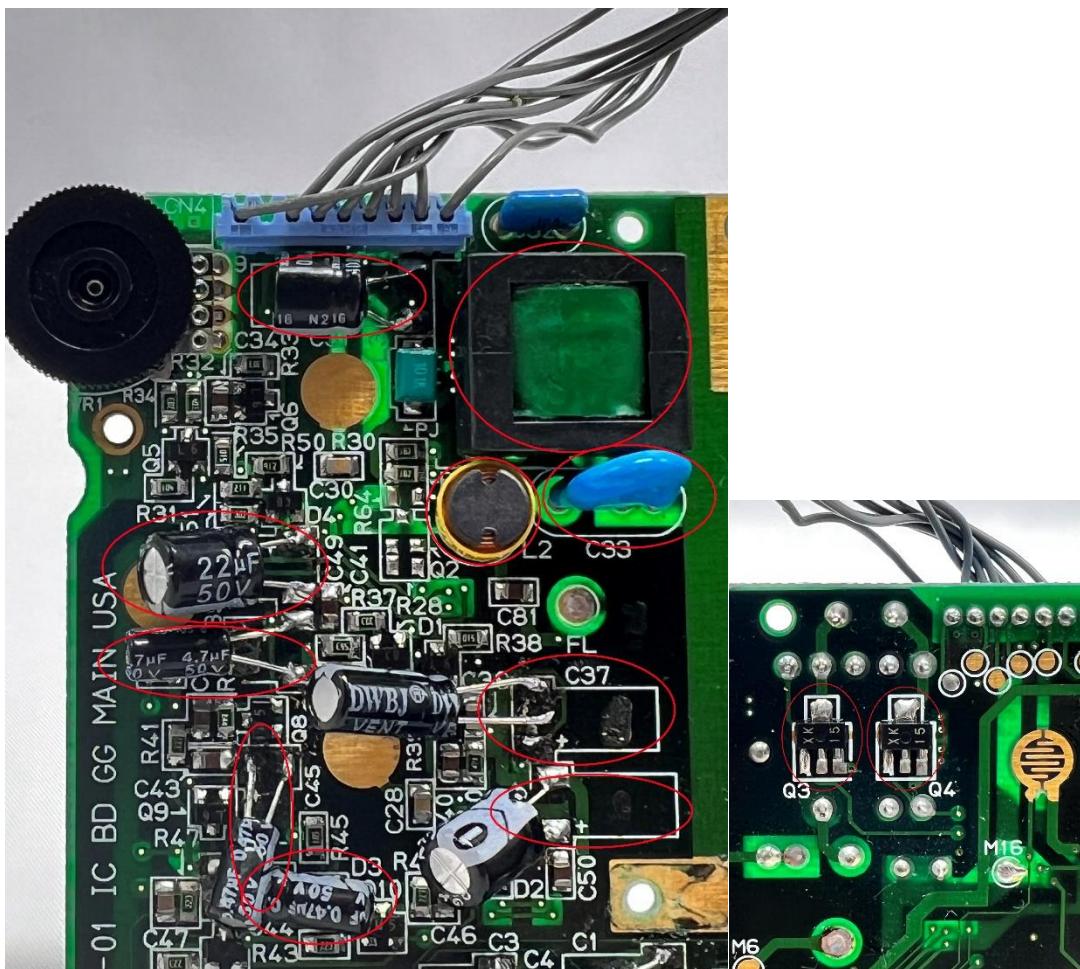
Find your motherboard and power board revisions and follow the diagrams to recap your PCBs. Audio PCB does not need a recap.

Step 4: Reconnect the power PCB to the motherboard and close the Game Gear. Connect a power source (wall adapter or 6x AA batteries), plug in a game, and test the console. Ensure the console powers on and reads the game. If the recap is successful, move on to step 5.

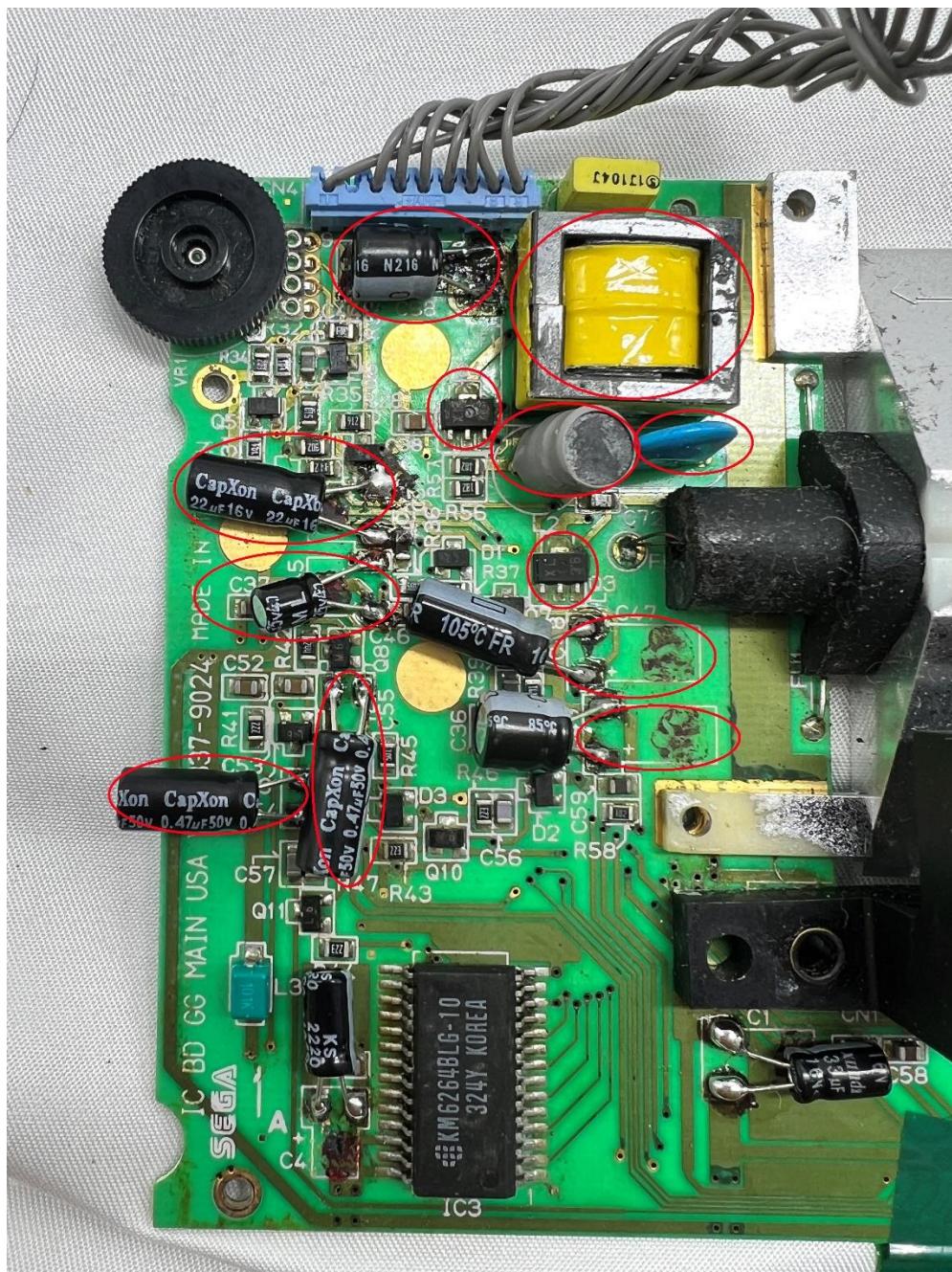


NOTE: Save the screws from the cartridge connector shown above. They will be required for final assembly.

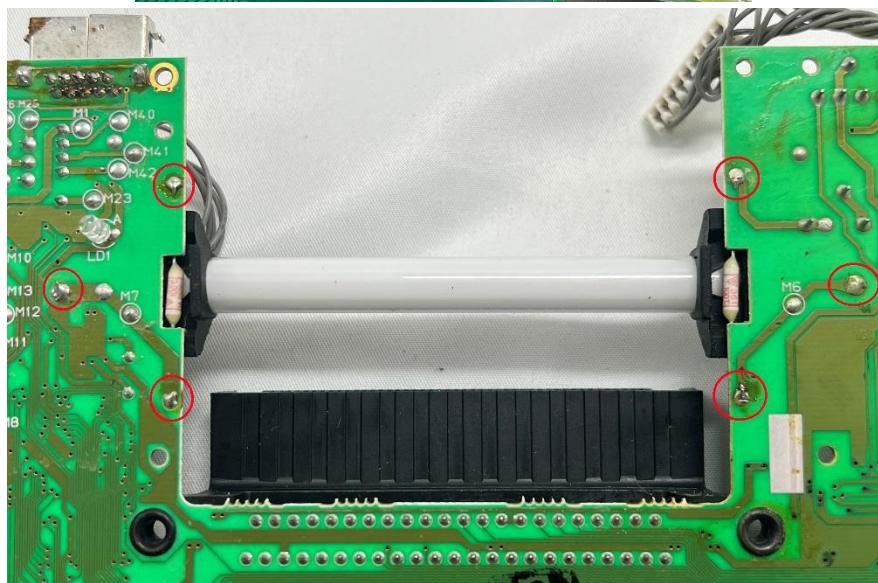
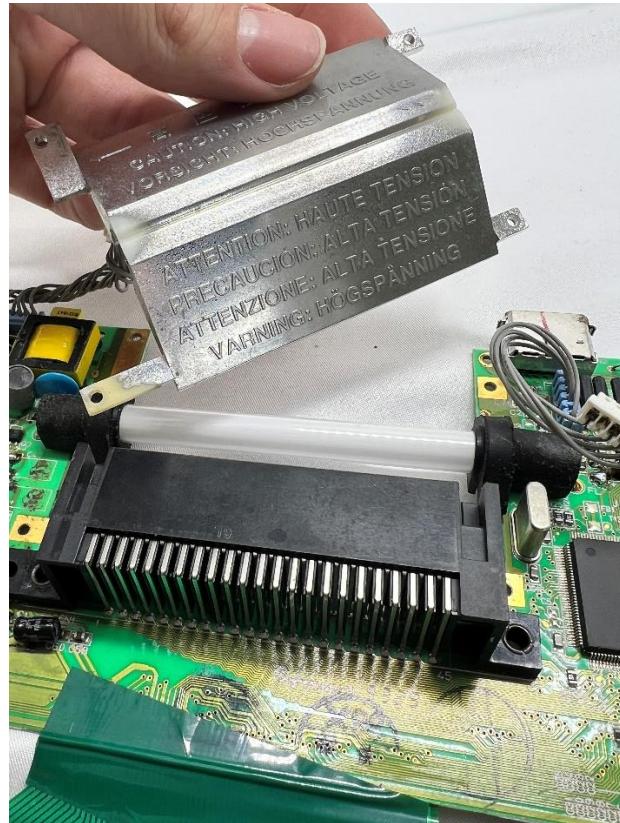
Part II: Game Gear Motherboard Preparation



Step 5 (Dual ASIC Models): Remove the circled components.

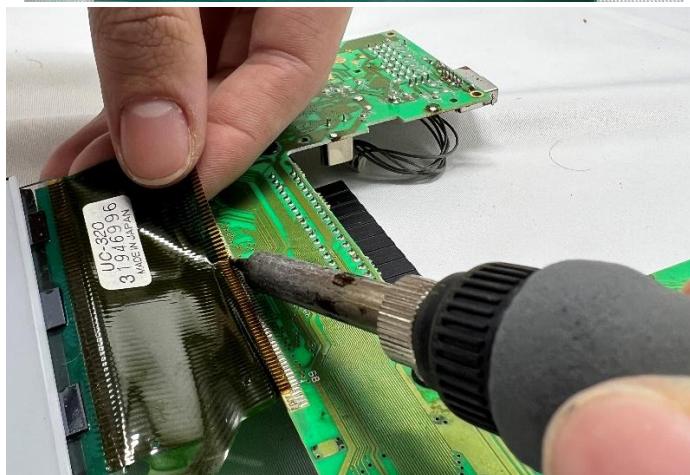


Step 5 (Single ASIC Models): Remove the circled components.

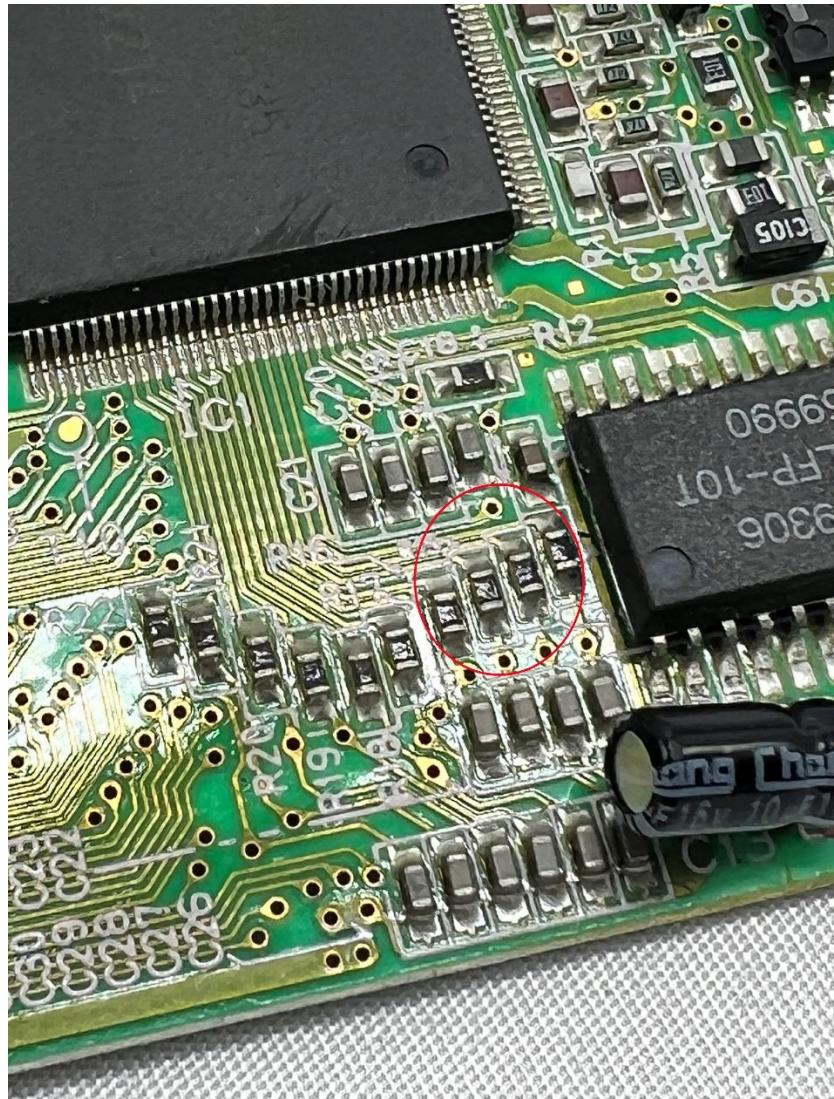


Step 6: Remove the reflective shield. Desolder the points in the red circles and remove the CFL tube and the fuses.

NOTE: Solder must be removed for the GGHD to sit flat on the motherboard.

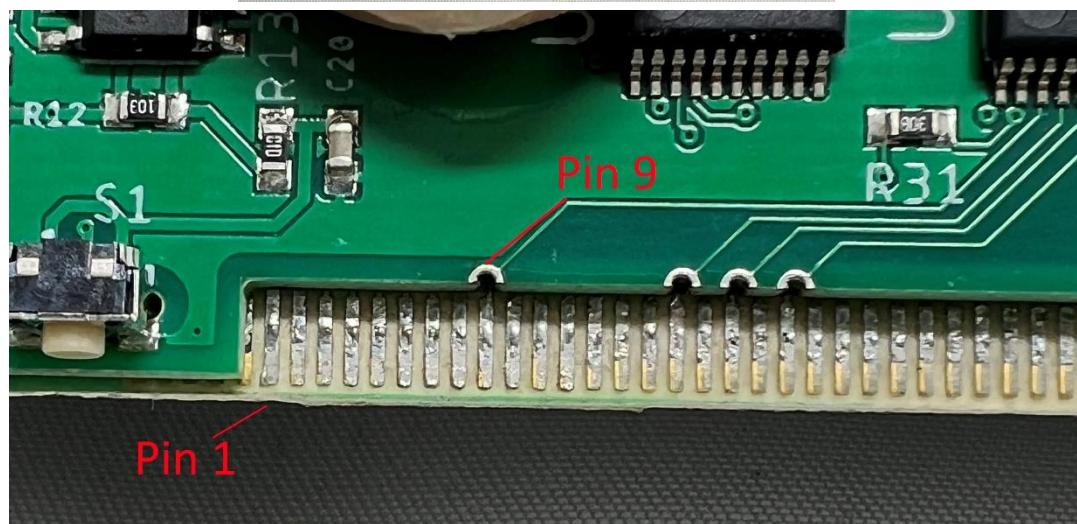


Step 7: Remove tape below the cartridge connector. Remove the screen from the motherboard by applying **GENTLE** but firm upward pressure and drag soldering the screen pin contacts. The screen cable will cleanly be lifted from the contacts one at a time when drag soldering with correct pressure applied. Remove excess solder from screen pins on the motherboard.



Step 8 (Single ASIC installs ONLY): Replace the circled resistors with a solder bridge. Continue to step 9 if you are performing a dual ASIC install.

Part III: GGHD PCB Installation

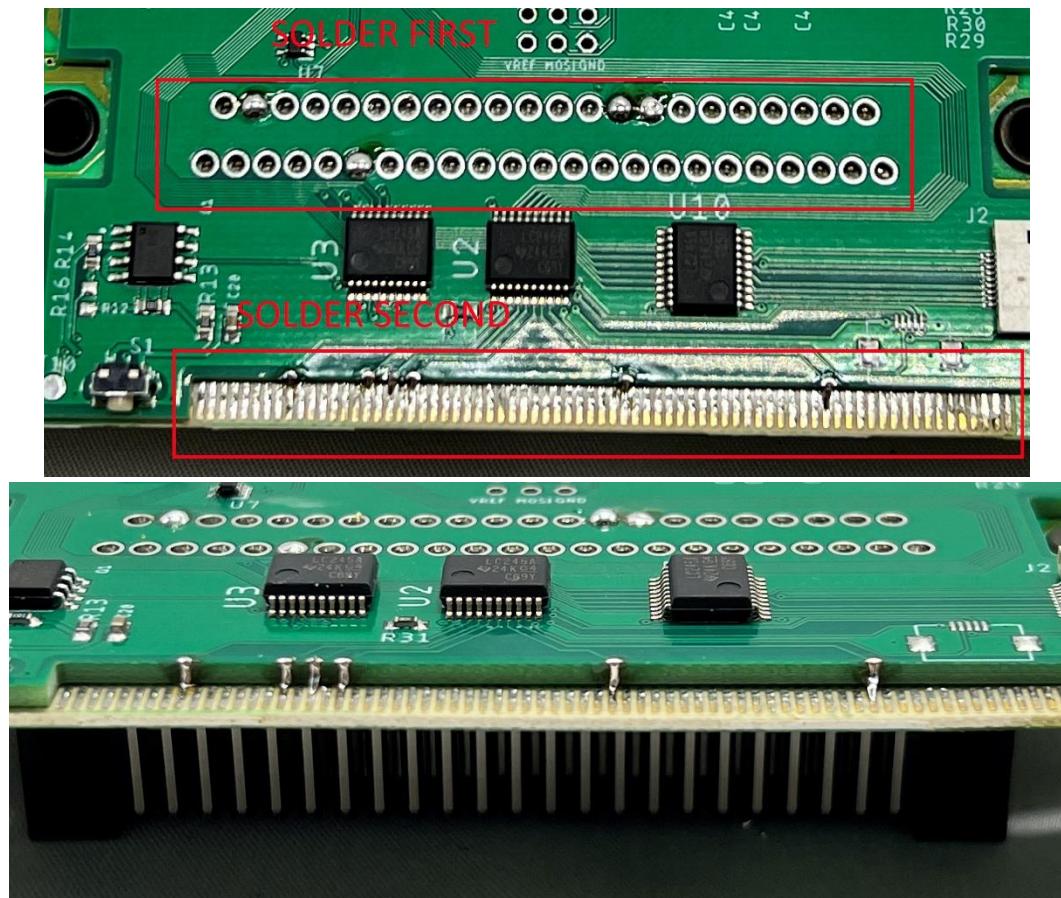


Step 9: Place the GGHD PCB on the Game Gear motherboard aligning the cartridge

connector pins to the solder holes on GGHD as shown. Slide GGHD down as far as possible to make the castellated edges as close as possible to the screen pins on the Game Gear motherboard. Ensure Pin 9 aligns with the first castellated edge.

Step 10: Before moving to step 11, take a moment to ensure the GGHD PCB is sitting as close as possible to the Game Gear motherboard. If there are any gaps caused by excess solder on the screen connector pins or the solder points shown in step 6, remove the solder before continuing.

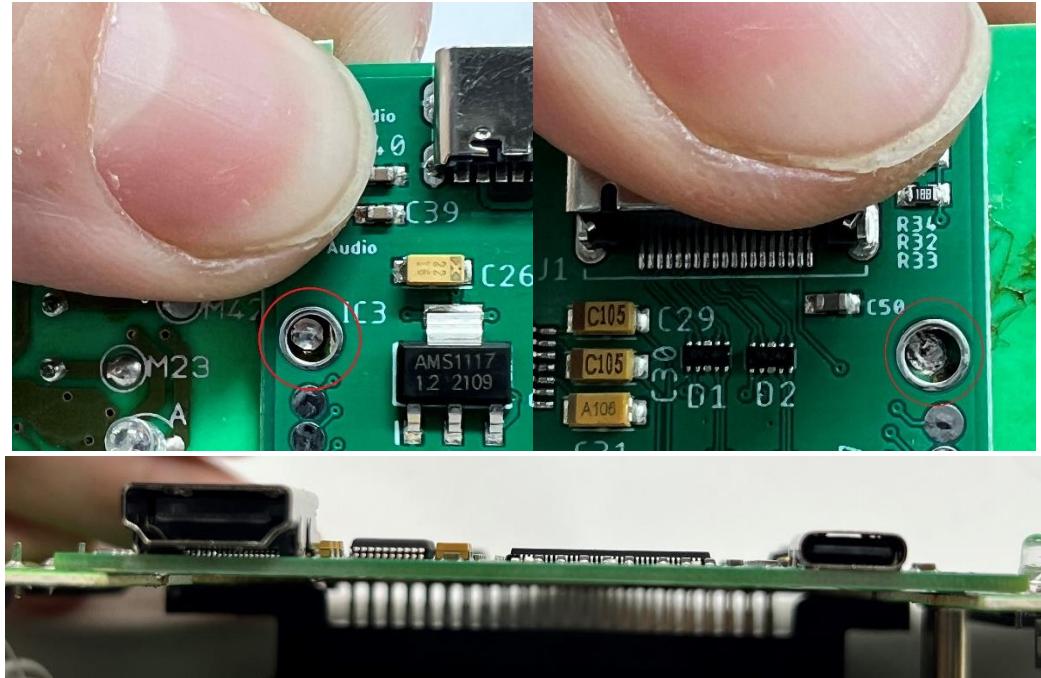
Failure to follow step 10 may result in a botched install!



Step 11a: Solder to the cartridge pins shown first. Apply a small amount of downward pressure on the GGHD PCB to ensure it is as close as possible to the Game Gear motherboard. Only the solder pins on the cartridge connector that are soldered in the picture above are required.

More can points can be soldered if desired.

Step 11b: Solder the castellated edges to the screen pins on the Game Gear motherboard by soldering at the the point where the two PCBs meet.

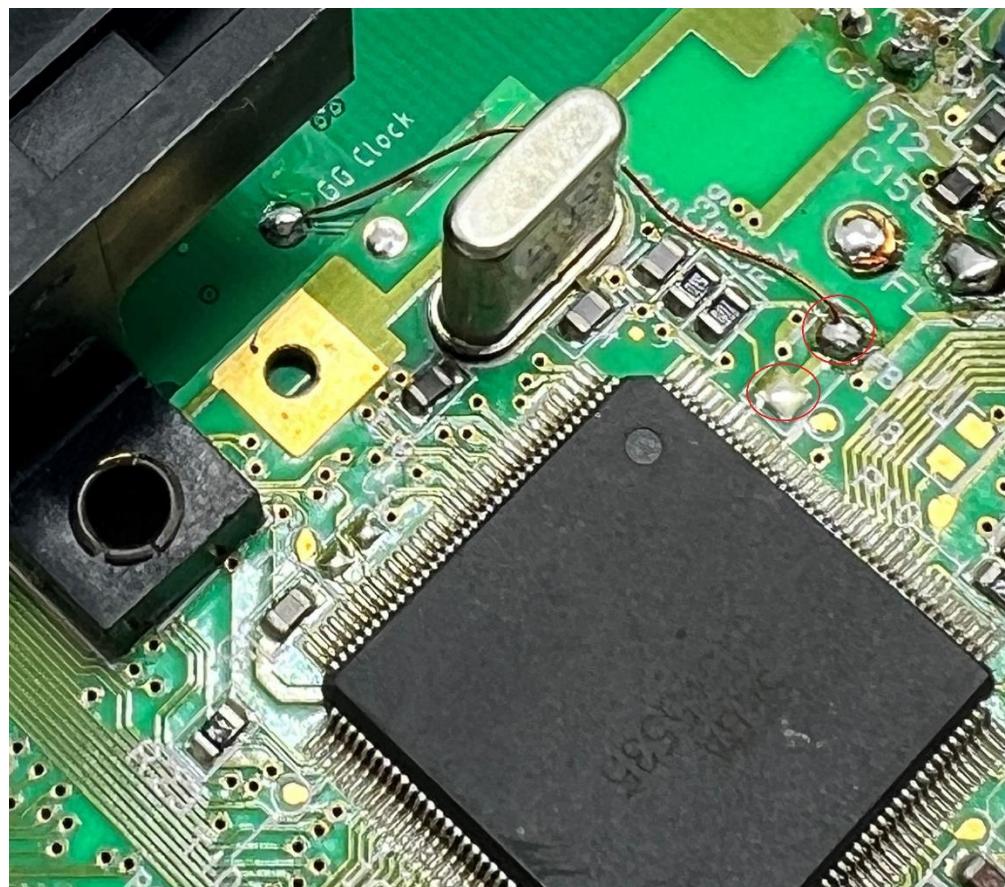


Step 12: Solder to the anchor points circled.

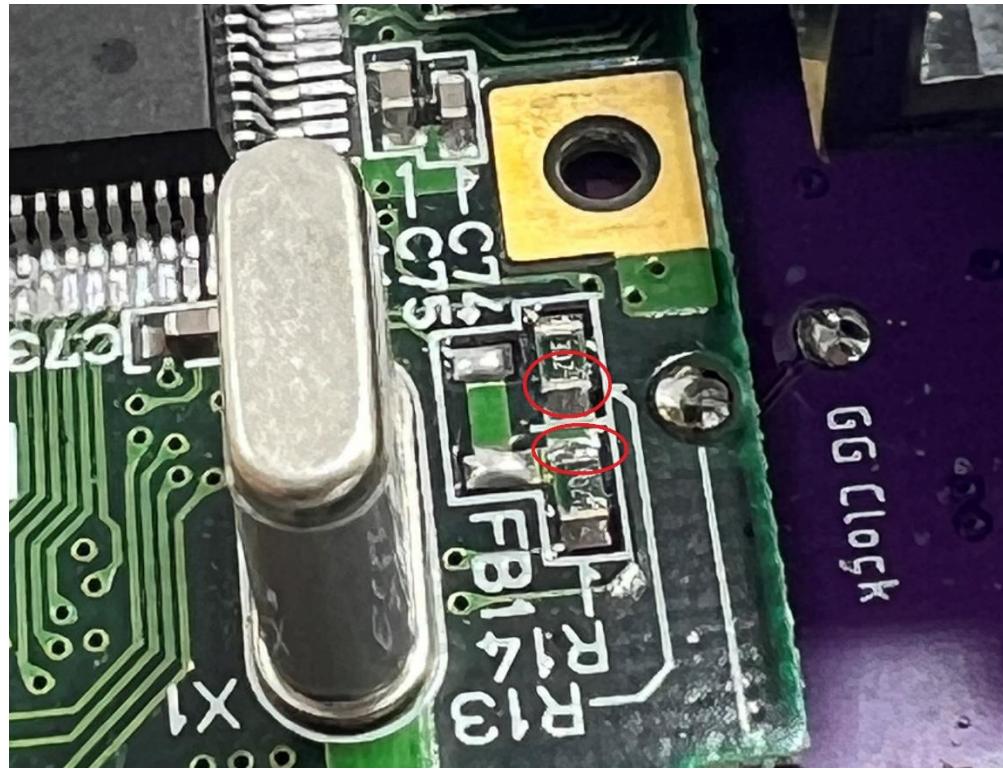
Apply a generous amount of solder first,
then pinch the 2 PCBS together while
applying the soldering iron to the anchor
points again to ensure the PCBs are as close
as possible.

Part IV: Wiring Controls and Sense Signals to GGHD

NOTE: Unless specified, pad labels on the Game Gear motherbaord are the same on 1 and 2 ASIC Motherboards. Location may slightly vary.

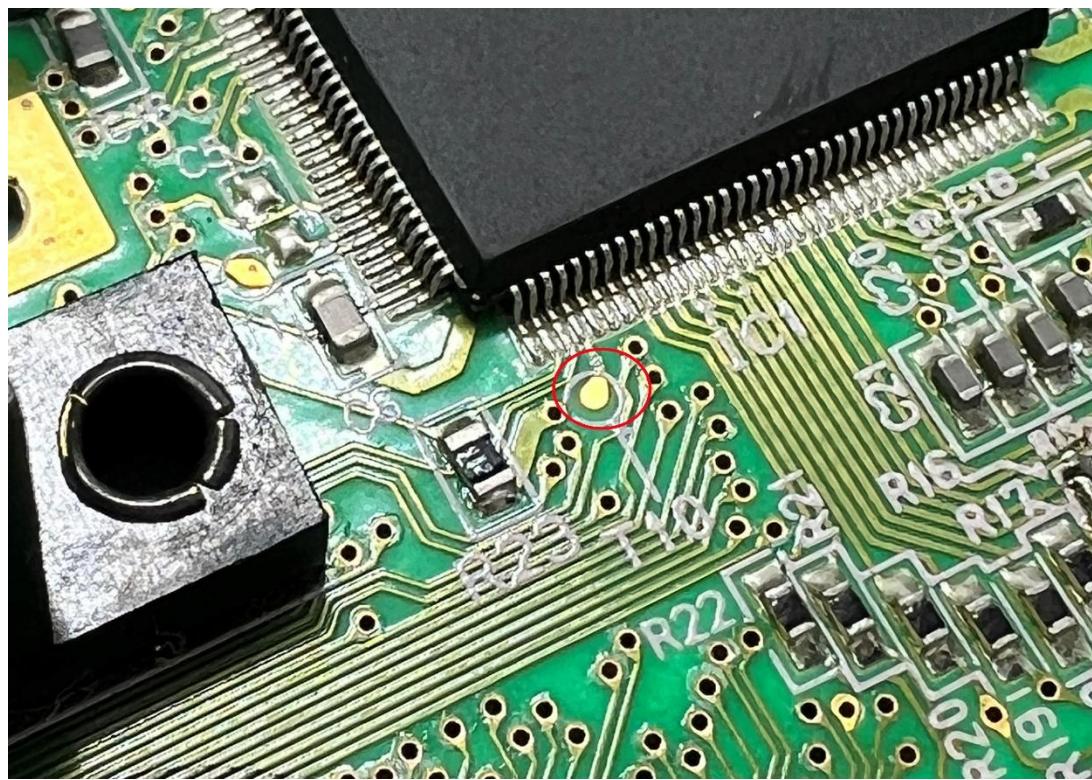


Step 13 (Single ASIC): Solder “GG Clock” to either of the points circled in red.

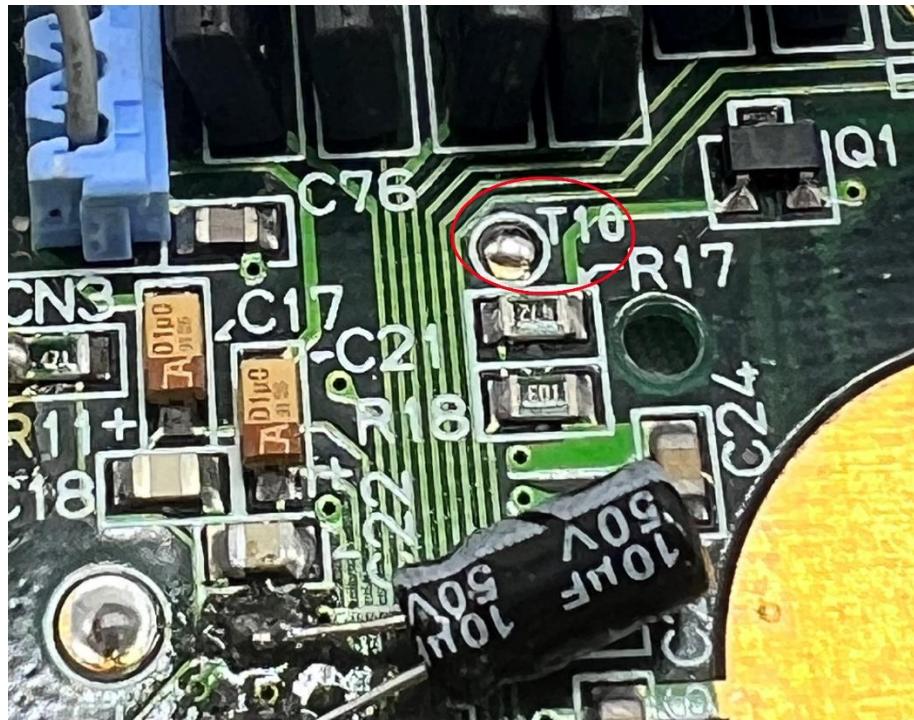


Step 13 (2 ASIC): Solder GG Clock to either resistor pad circled in red.

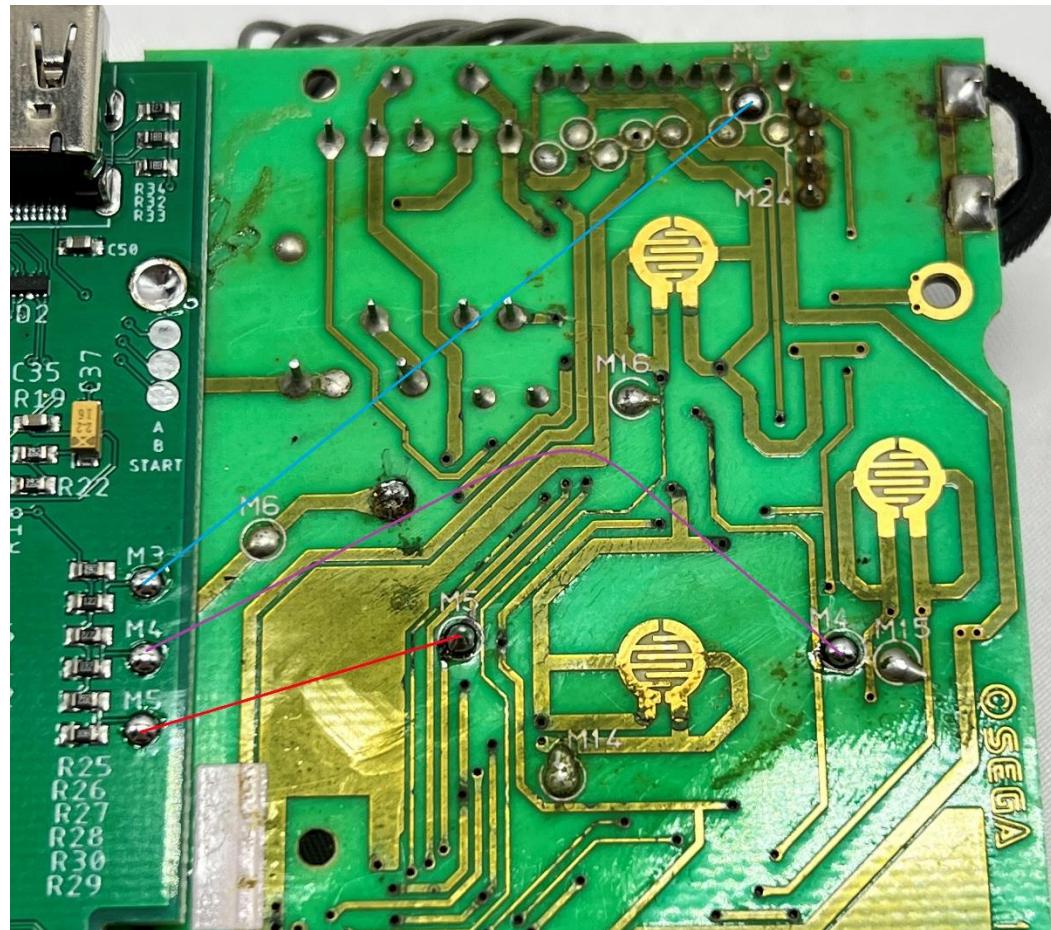
NOTE ON STEP 13: Keep this particular wire as short as possible! A long wire may cause graphical artifacting.



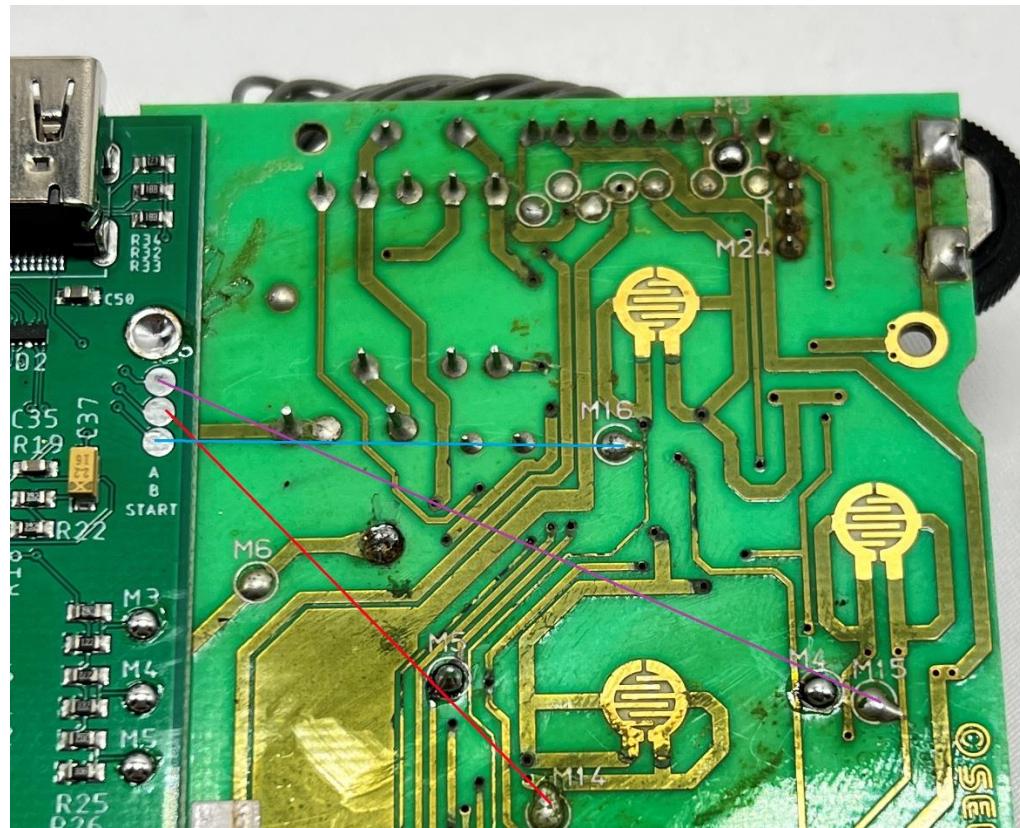
Step 14 (Single ASIC T10 location)



Step 14 (2 ASIC T10 location)

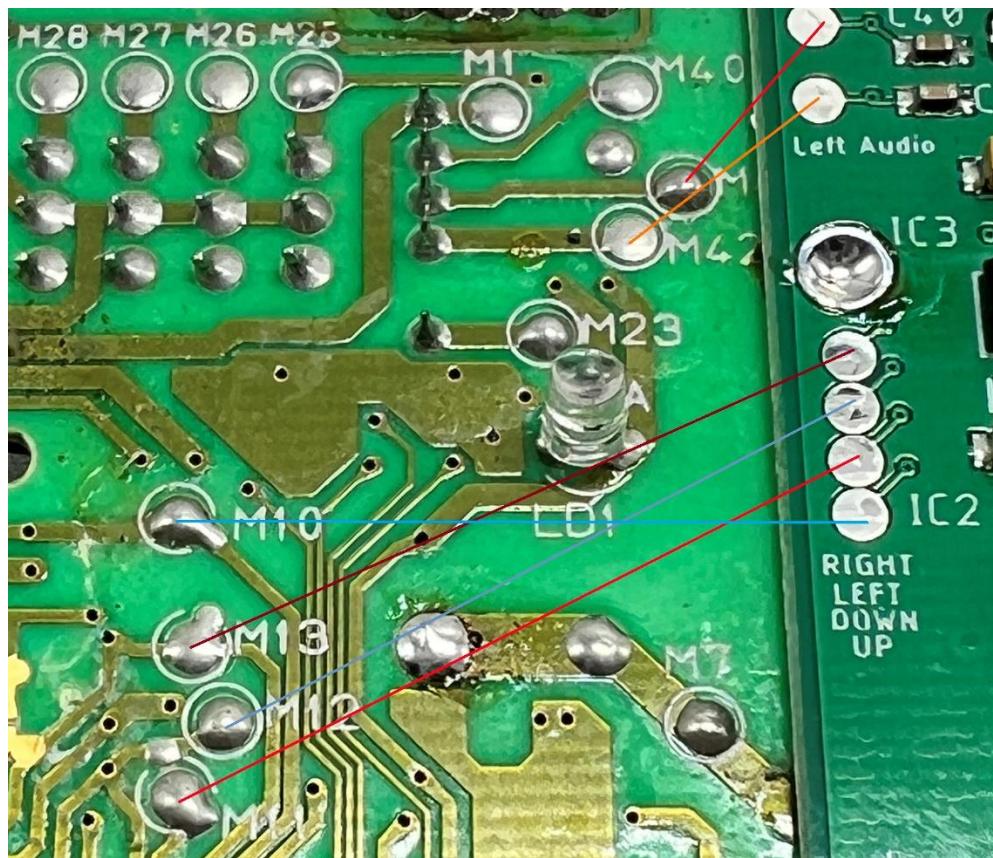


Step 15: Wire M3, M4, and M5 to the corresponding pads. Picture shows single ASIC motherboard as example.



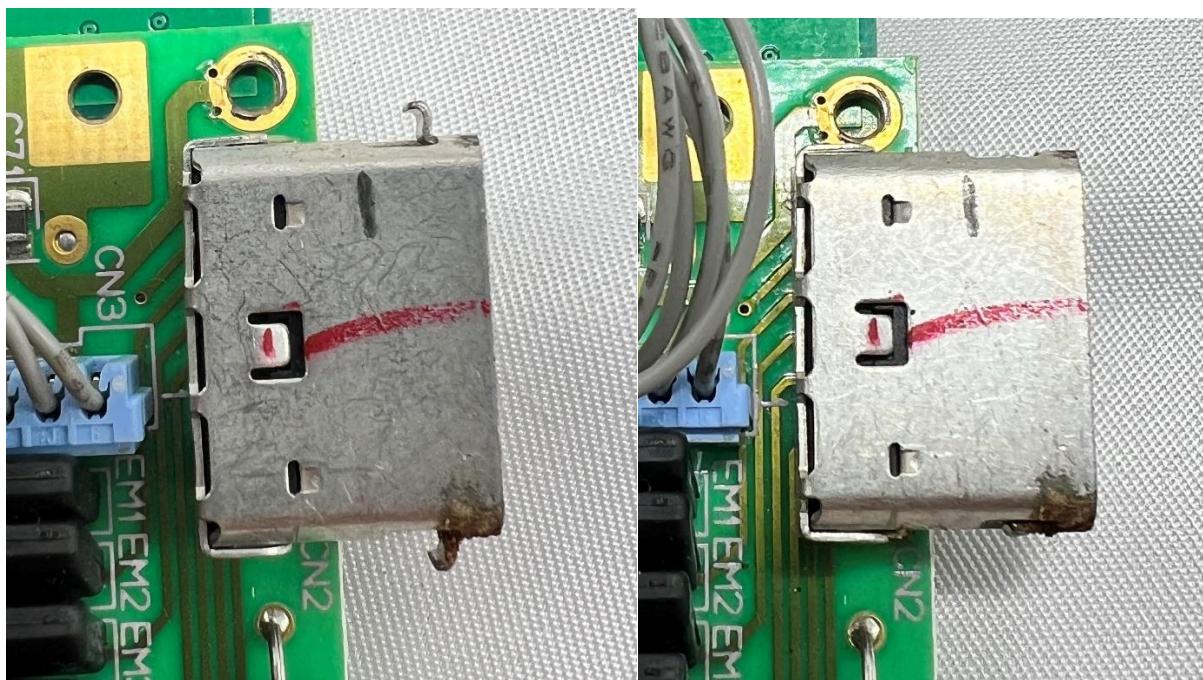
Step 16: Wire the following points

- START -> M16
- B -> M14
- A -> M15



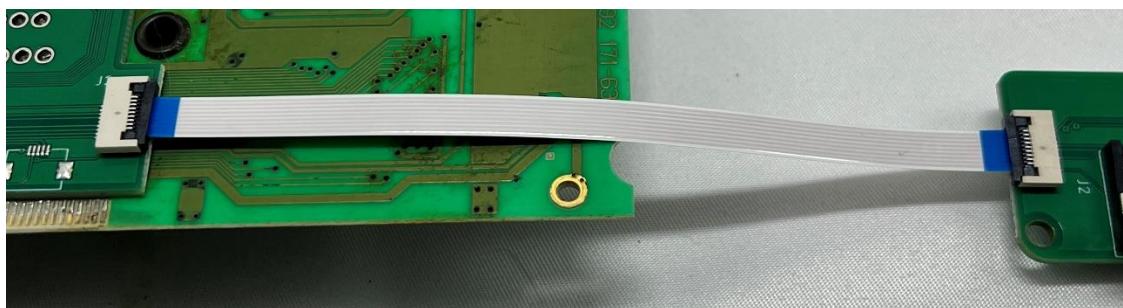
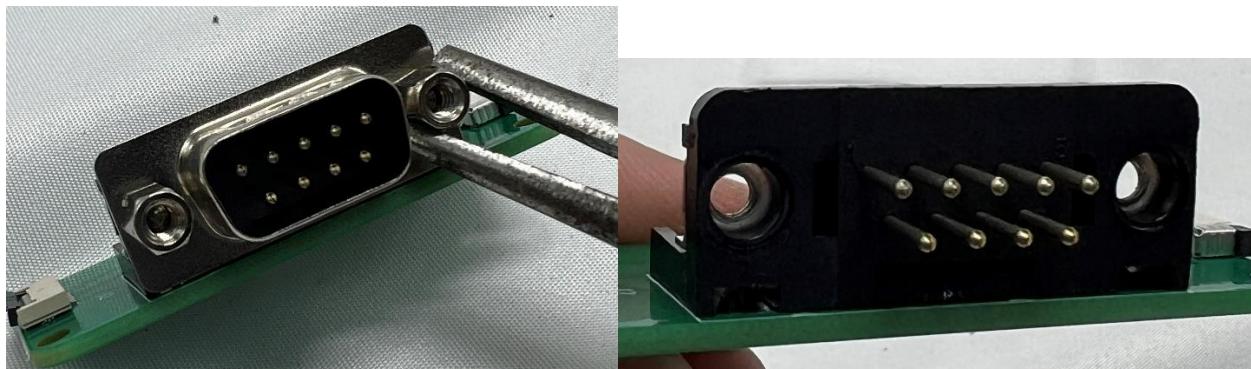
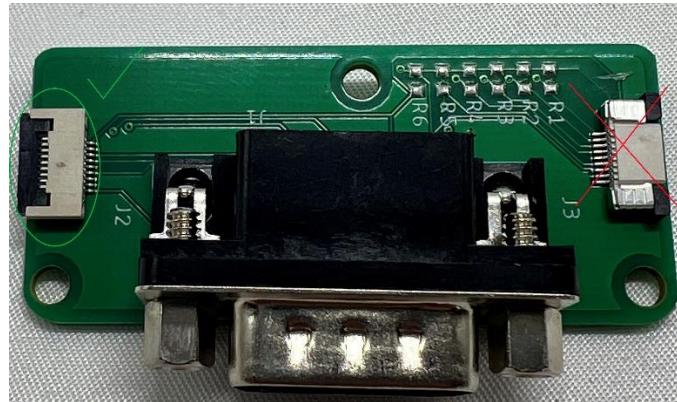
Step 17: Wire the following points

- Right Audio -> M41
- Left Audio -> M42
- UP -> M10
- RIGHT-> M13
- LEFT -> M12
- DOWN -> M11



Step 18: Using a needle nose pliers, flatten the side tabs on CN2 (expansion port)

Part V: GGHD Final Assembly



Step 19: Using a needle nose pliers, remove the bolts and the metal shroud on the controller connector. Connect to GGHD as shown. **NOTE: DO NOT** use connector J3!



Step 20: Insert power button plunger into the recess to the right of the controller PCB. Place controller PCB in the front of the bottom case followed by the Game Gear motherboard. Align screw holes and assembly will drop into place. Secure using 4mm M2 screws (red circles) and the Game Gear Cartridge case screws (white circles).



Step 21: Place bracket as shown controller port first and align controller port mounting holes with front two holes of bracket. Place top case on top of the bracket for final step of assembly.



Step 22: Flip console over to the bottom of the consolizer. Place an M4 screw into one of the two front holes. Adjust controller PCB such that the screw goes through to the threaded insert and fasten. Fasten the remaining 3 M4 screws.

Part VI: Enjoy!

