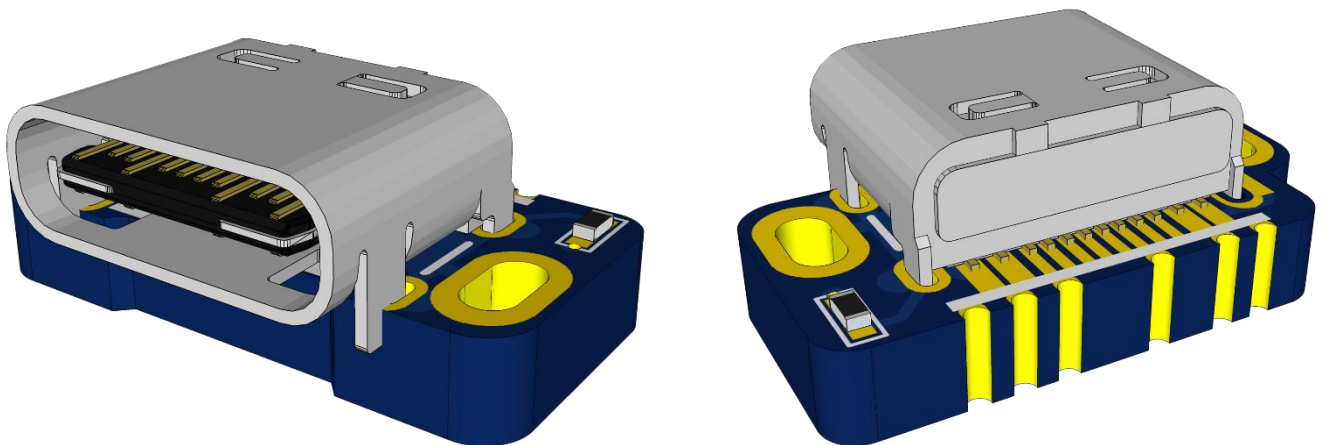


USB-C KIT FOR GAME BOY ADVANCE SP AND NINTENDO DS



NINTENDO USB-C CHARGING KIT

[HTTPS://SHOP.GILTESA.COM/CATEGORY/GAME-BOY-ADVANCE-SP/](https://shop.giltesa.com/category/game-boy-advance-sp/)

**PLEASE READ THROUGH THESE INSTRUCTIONS
ENTIRELY BEFORE ATTEMPTING TO INSTALL**

**WARNING: IF YOU ARE NOT COMFORTABLE WITH
SOLDERING, OR PERFORMING ANY STEP IN THIS
GUIDE, DO NOT PERFORM THE INSTALL YOURSELF.
FIND SOMEONE WHO IS COMFORTABLE TO DO IT FOR
YOU.**

DESCRIPTION

The Game Boy Advance SP: USB-C Kit allows to charge the battery by USB-C cable or connect headphones with USB-C or by jack adapter to USB-C in your Game Boy Advance SP *(Also compatible with Nintendo DS, but for simplicity, it will not be mentioned more in the document)*

The USB-C specification has two ways of audio connections. Be sure your headphones or jack adapter use the first one because otherwise you will not be able to hear anything.

- **COMPATIBLE:** The legacy one that use some extra pines of the USB-C to take out the analog audio and where you can connect normal headphones or jack adapter.
- **NOT COMPATIBLE:** The advanced one where the headphones include a DAC (Digital to Analogue Converter) and needs energy from the USB connector to manage the electronic components inside the headphone's connector.

There are two versions of this board, both with the same features except for the thickness of the board. The first one has 1.2mm thickness, and the USB-C connector is level with the joining of both parts of the GBASP shell. The second version has a 2.4mm thickness the USB-C connector is almost in the centre of the hole.

The plastic cap to cover the hole may change between both versions, check the shop product description for more details.



Comparison between the two versions: Left 1.2mm, right 2.4mm

FEATURES

- New castellated holes (pads): It has never been so easy to solder it. ([Link](#))
- Plastic cap made by 3D printer or resin 3D printer.
- Charging your Game Boy Advance SP by USB-C, compatible with:
 - USB power banks
 - USB-A chargers
 - USB-C chargers *
 - USB-C PD chargers (normal speed, not fast) *
 - USB-A to USB-C cables
 - USB-C to USB-C cables *
- Playing the sound using a USB-C headphones or USB-C adapter to Jack 3.5mm.

* This feature has been recently added but has a limitation. Before USB-C to USB-C cables were not compatible and they didn't charge the GBA SP. They can be used now, but they work only connected in one side. It means when you connect the USB-C cable face up will charge correctly the battery and the orange led will turn on, but when you connect face down will not do anything.

(Supporting double side connecting disable the audio of the speaker. So, this is the best option to keep the audio works and makes the USB-C to USB-C cables/chargers compatible.

INCLUDED

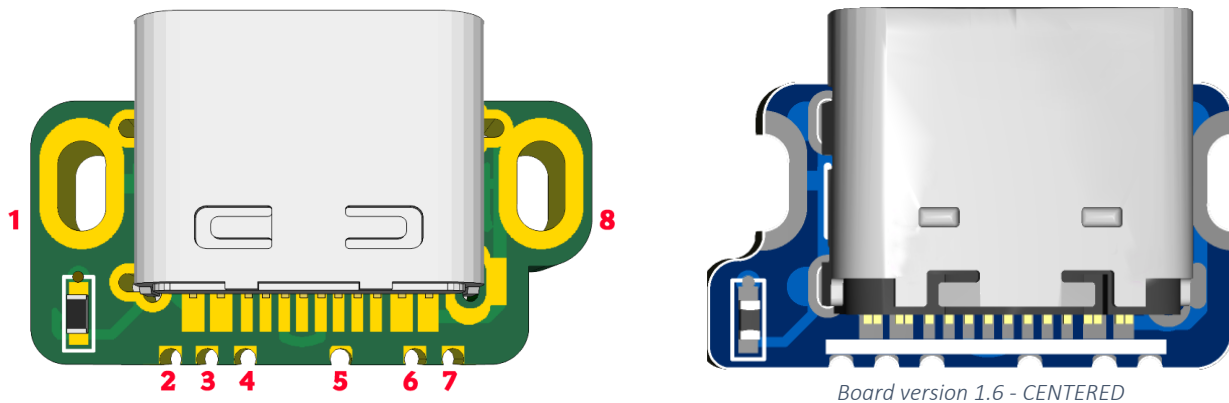
- 1 board (1.2mm or 2.4 mm thickness depending on the choose version)
- 1 plastic cap to cover the hole.

RECOMMENDED / REQUIRED [NOT INCLUDED]

- Tri-wing and phillips screwdriver
- Tweezers
- Cutting plier
- Kapton tape
- Soldering iron
- Tin
- Flux
- Desoldering pump
- Desoldering mesh
- Isopropyl alcohol

BOARD DETAILS

This tiny board has eight pads in about 1cm² surface, which means it requires high soldering skills. The following explains what each pad is for.



Starting from the left to the right:

1. **SHIELD ***: The shield pad, also as ground pad.
2. **GND**: The ground pad.
3. **SDN**: Shutdown pad to disable the speaker when the headphones are connected.
4. **AUDIO GND**: The ground audio line.
5. **AUDIO R**: The right audio line.
6. **VCC**: The 5V line from the USB-C.
7. **AUDIO L**: The left audio line.
8. **SHIELD ***: The shield pad, also as ground pad.

* These two pads hold the board to the GBA SP motherboard, make sure to solder them well to hold the board properly.

2023-01: v1.6: The pads 1 and 8, called SHIELD, have been modified to facilitate installation. Now it is much easier to install, and since soldering can be done more easily, it is more robust, as previously, when these pads were closed, the soldering could be incorrectly applied.

INSTALLATION STEPS

Please, carefully read the following steps for a successful installation.

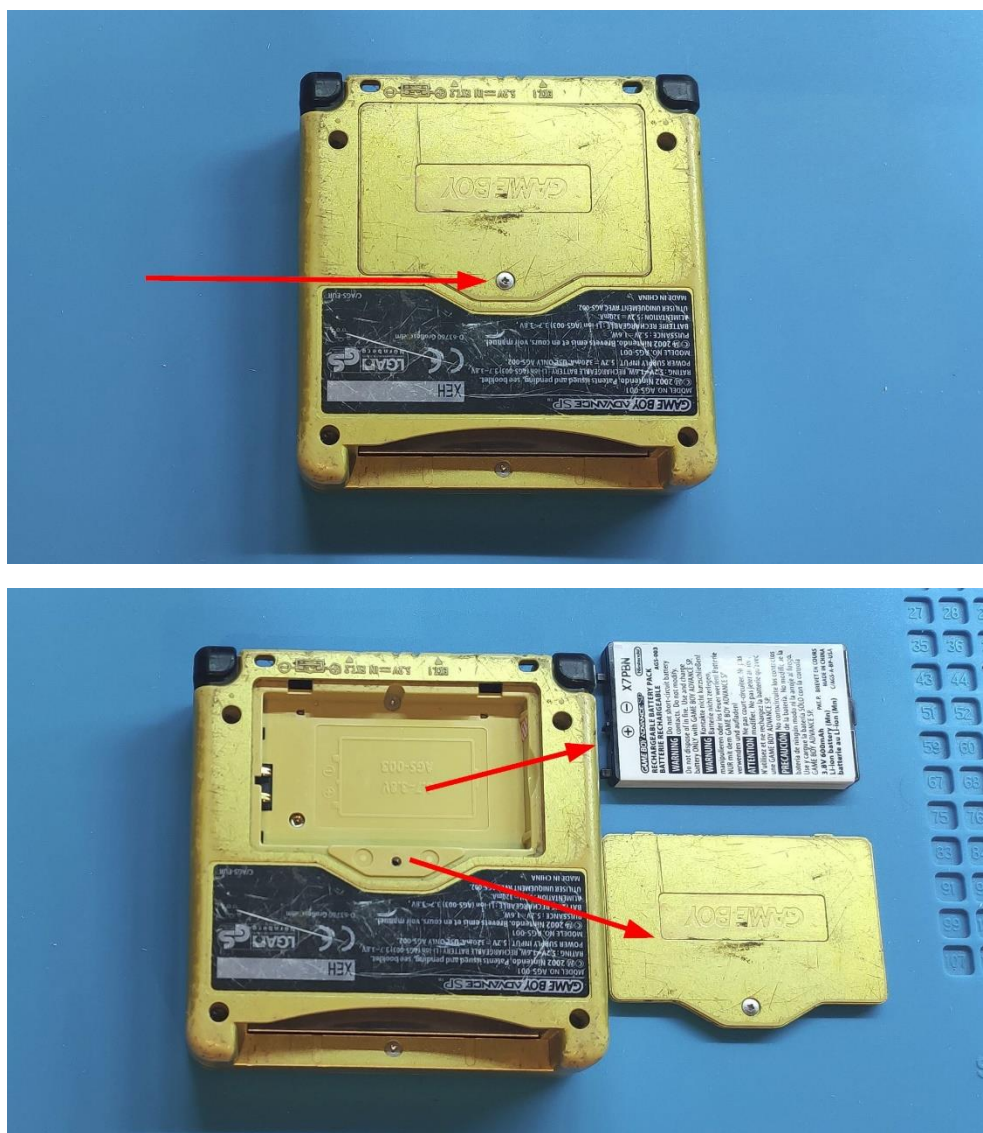
PRE INSTALLATION STEPS

Before the installation, your GBA SP may need some extra steps to have it ready for the kit.

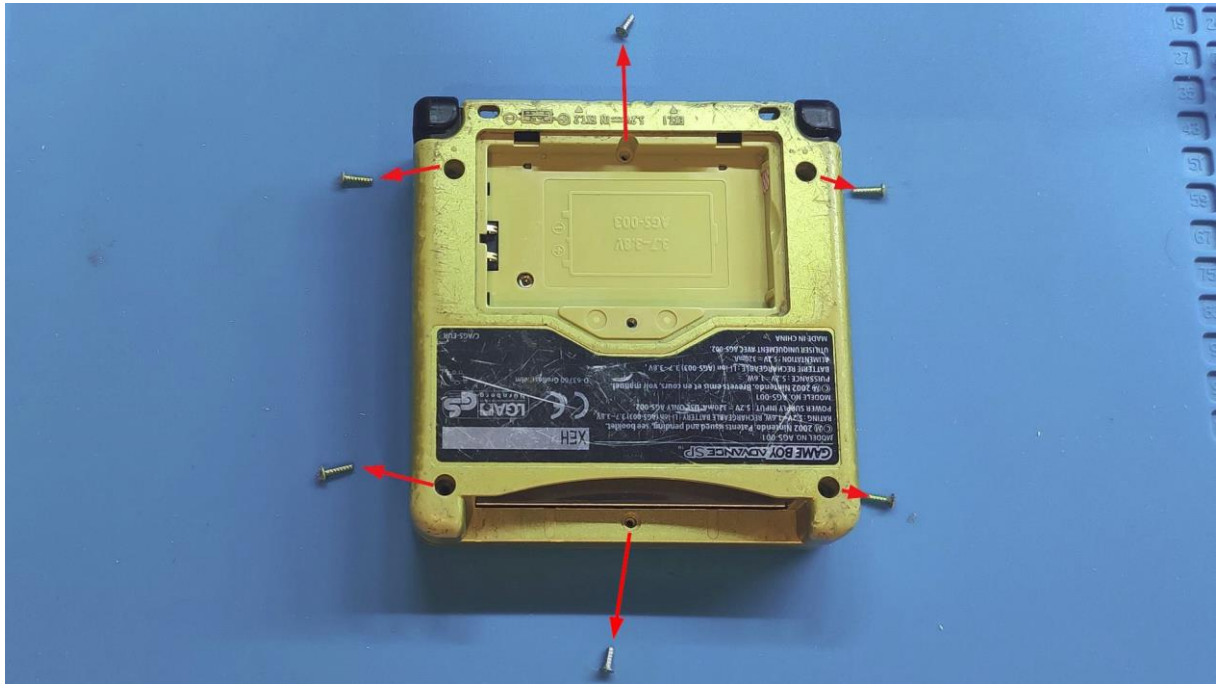
1. DISASSEMBLY THE GAME BOY ADVANCE SP

Nintendo products in widespread use two kind of screws. The first one called **tri-wing** to close the shell, and the second one called **phillips** to hold the main board to the shell.

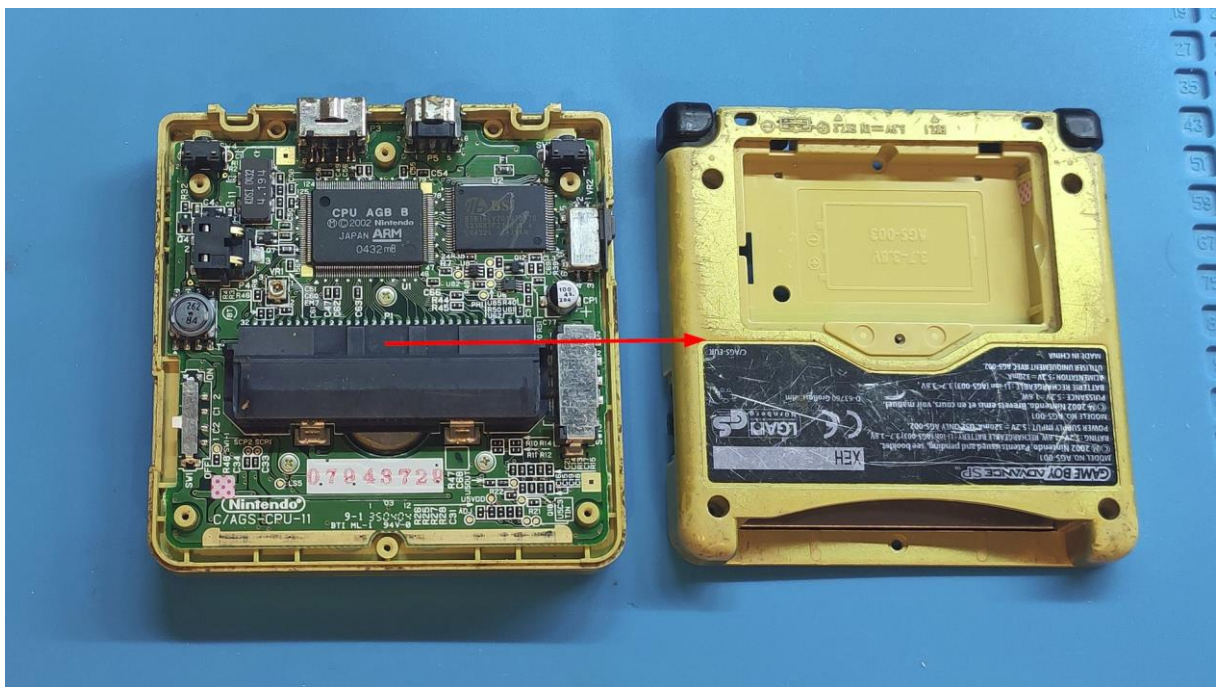
First use the **phillips** screwdriver to remove the battery cover:



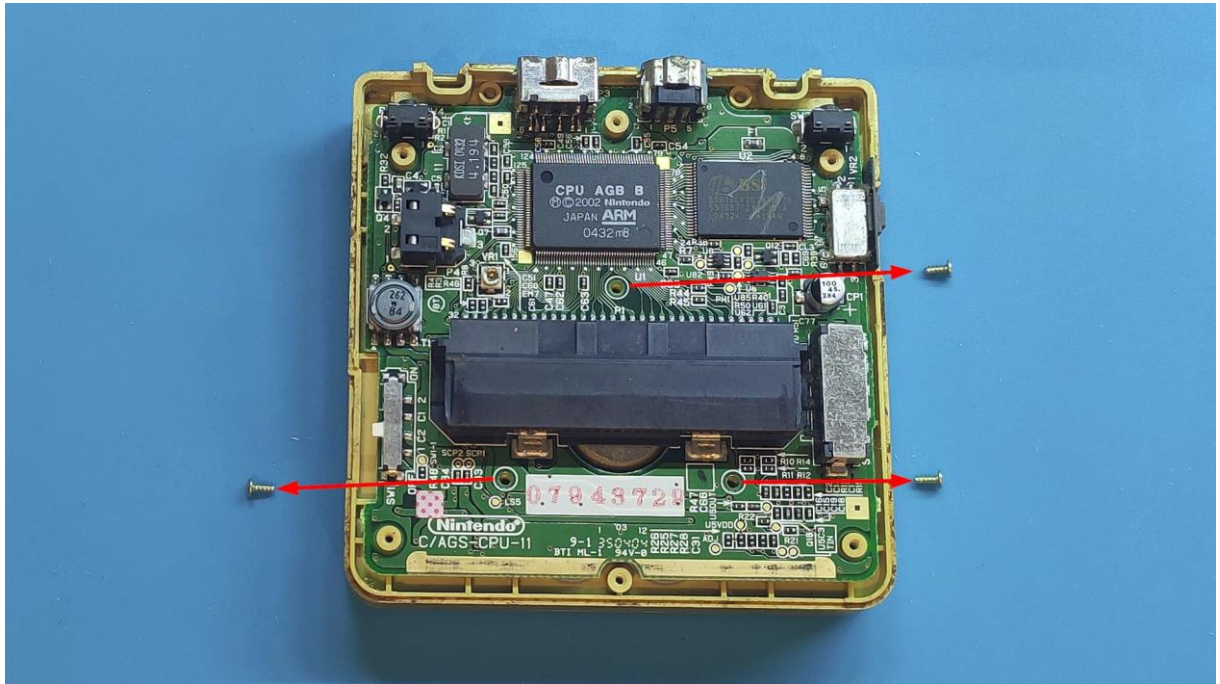
Then, unscrew the six tri-wing screws:



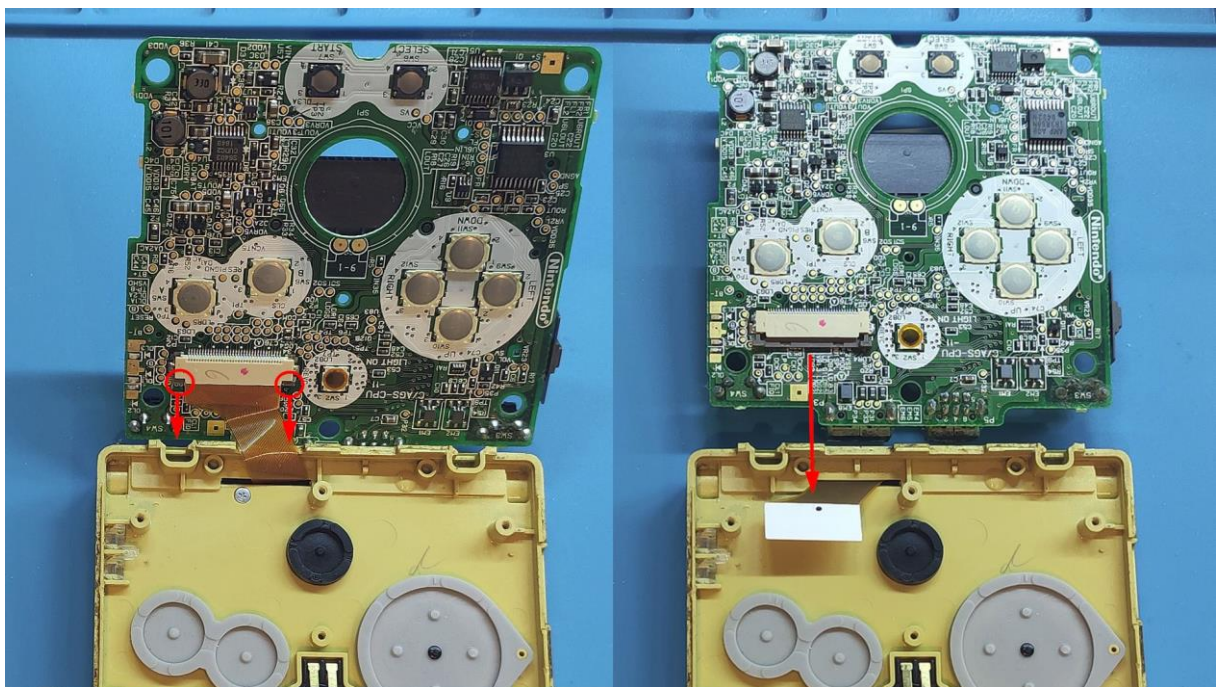
And put aside the bottom plastic shell:



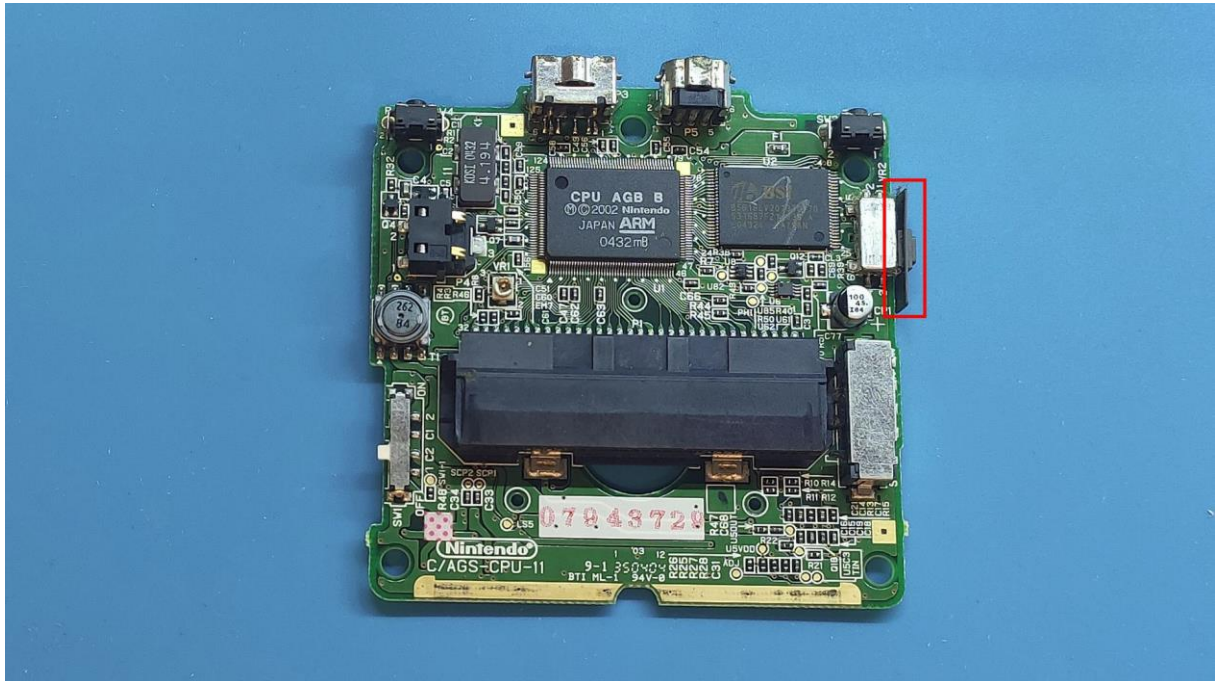
Then, remove the three **phillips** screws with a **phillips** screwdriver.



Carefully **disconnect** the display cable from the mainboard.



As last step, the volume switch cover can be removed, but do not force it as it may be held tightly.



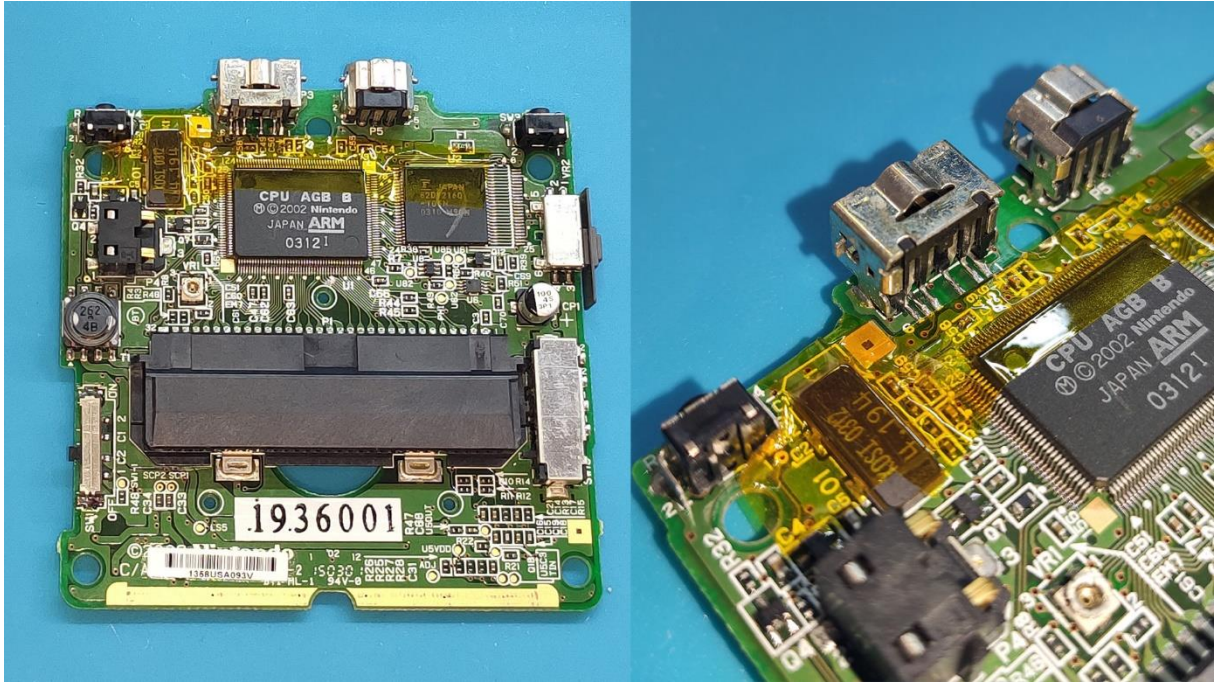
2. CLEANING THE MAINBOARD

Use isopropyl alcohol to clean the board. Since the board was made in 2002, the board may be full of dust. All this dirt can be cleaned with alcohol.

INSTALLATION STEPS

1. PROTECT THE NEAREST COMPONENTS

Use Kapton tape to protect and avoid any damage to the electronic components that are next to the connector.



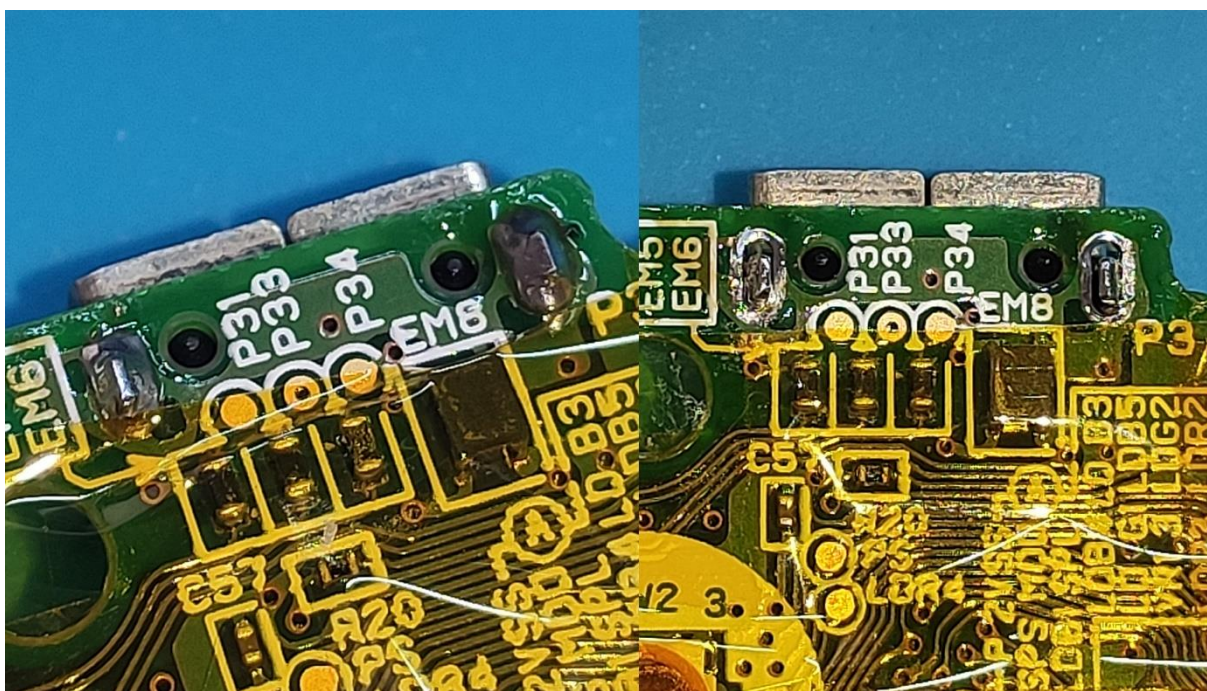
2. REMOVE UNNECESSARY COMPONENTS

This kit only requires removing the EXT.2 connector. However, it has many legs, and it may be hard to remove. Following the next steps should help to do it.

BE INCREDIBLY CAREFUL WHEN REMOVING THE CONNECTOR. THE COPPER PADS, WHERE THE CONNECTOR IS SOLDERED, ARE EXTREMELY FRAGILE AND CAN PEEL OFF.

If you have an air solder station, you can remove it easily, but protect perfect the nearest places with Kapton tape or something may be burn.

Otherwise, the recommendation is using a desoldering pump which will help to remove the tin from the shield pads.

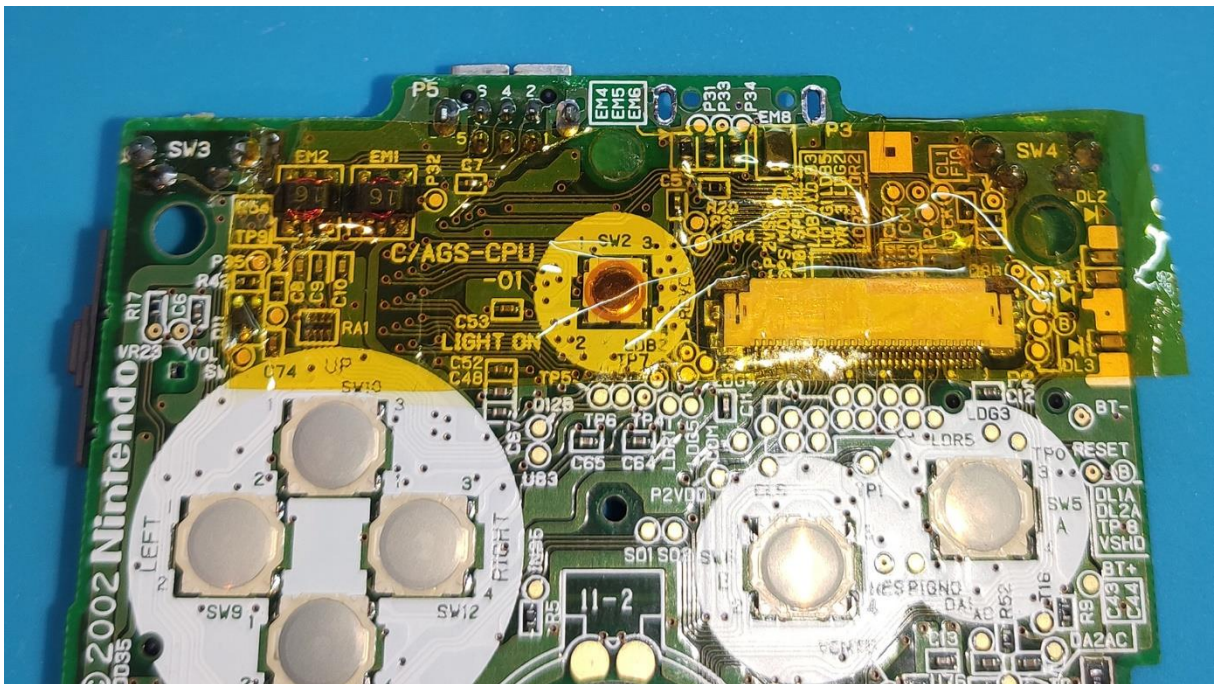
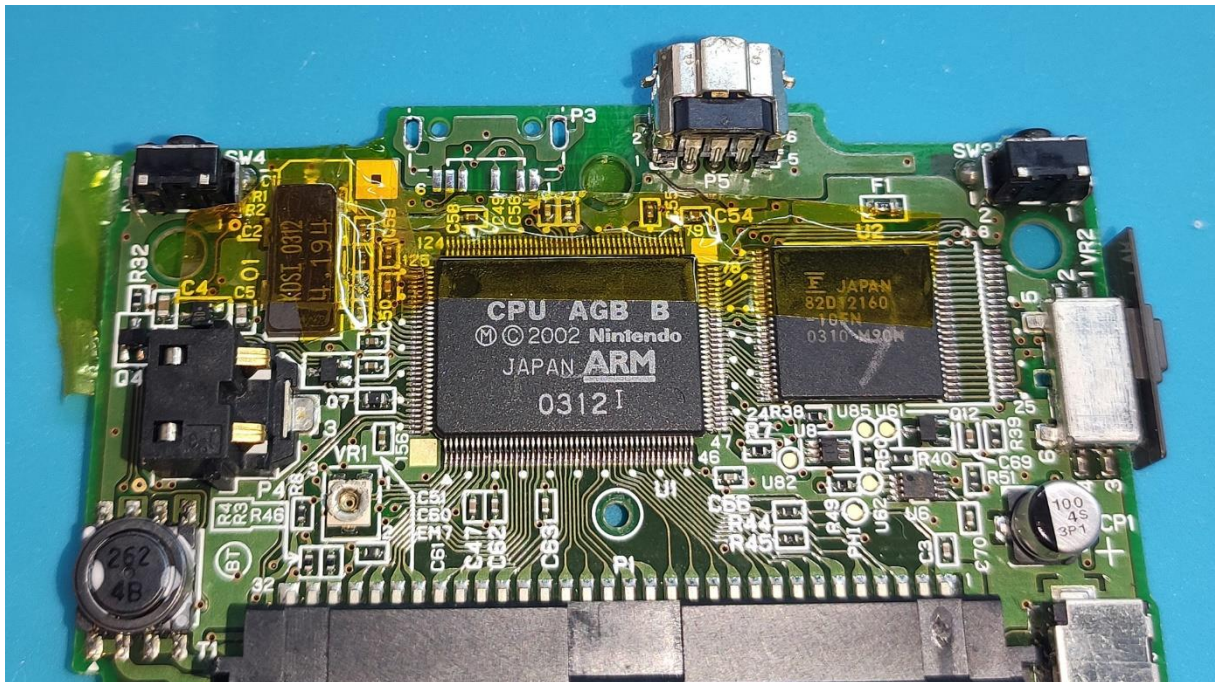


Left before, right after

After that, with the solder iron is possible to heat the remaining six legs at the same time and remove the connector. Some flux will help to desolder it.

3. CLEAN THE BOARD

After the component is removed, it may be dirty, clean the board again.



4. INSTALLATION OF THE USB-C BOARD

The easier way to centre the board on the mainboard is when the mainboard is screw on the GBA SP shell, so, you can put it back (the video cable doesn't need to be connected)

Once the mainboard is in the shell, you can place the board on the place where the original connector was. The board also must be touching the back of the plastic shell.

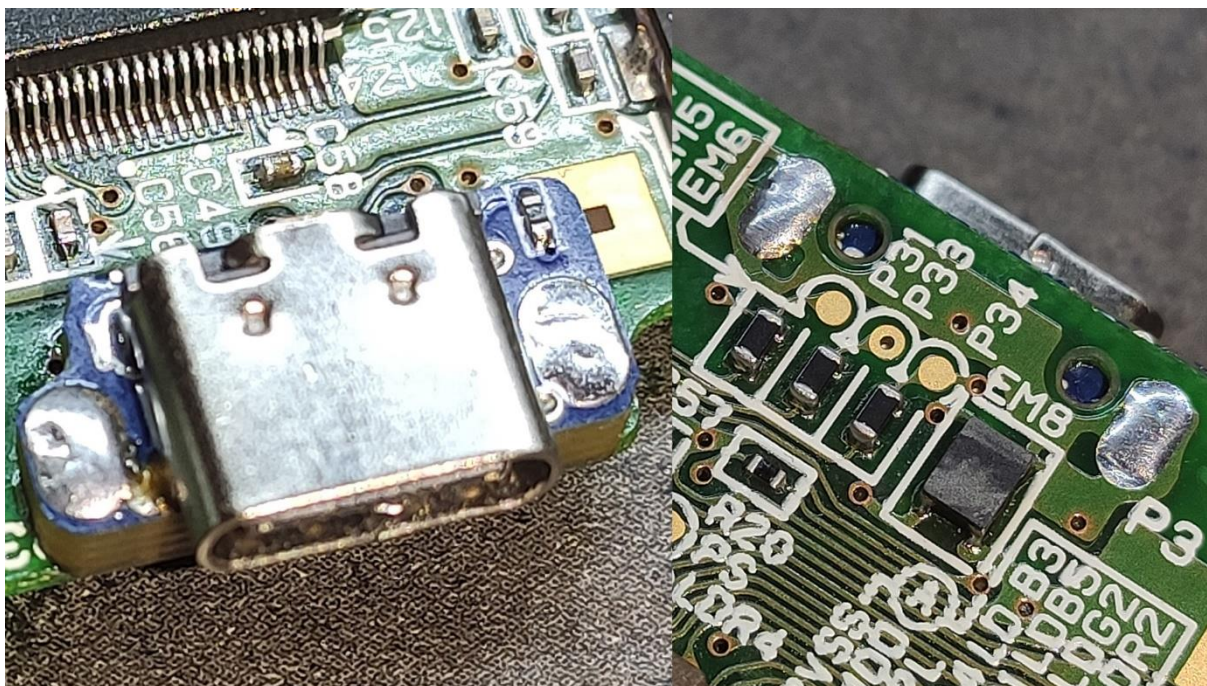
Please, see below video to understand how to do it:

<https://www.youtube.com/watch?v=PKm9SWTC8MQ>

At this point, you can put the plastic lid and check everything matches correctly.

After the 6 pads are correctly soldered, remove the mainboard from the plastic shell and finish the installation soldering the 2 big pads that will hold strong the board to the mainboard.

Be sure you solder it well and both pads are joined with the tin, otherwise the connector may move and damage the 6 weak pads.



5. FINISHING THE INSTALLATION

Now, you can put the mainboard back to the shell, connect the video cable, put the screws and everything as before. Enjoy it!

<https://www.youtube.com/watch?v=ZznNsDhFl9U>

6. ALTERNATIVE PADS FOR SOLDERING

If during the removal of the original connector any pads were broken, you can solder the board to the following alternative pins:

