The complete

XBOX ONE

Headset Soldering Guide

v1.1 dated 12/25/2013 (contains major updates!)

Please watch this YouTube video after having read this guide (video illustrates final testing of chat cable with continuity tester):

http://www.youtube.com/watch?v=HrYAww-JWgA

What is this guide about?

A lot of people recently migrated from the XBOX 360 (XB360) to the XBOX ONE (XB1). The cool legacy (most likely expensive) headsets that were bought for the XB360 do not work anymore without modification with the XB1.

I collected all available information in the web and performed some analysis and soldering on my own. The results have been assembled in this document.

Please note that there will be headsets or headset cables available for the XB1 in 2014 – this was stated by Microsoft®. If you do not want to wait, then read on.

Disclaimer

Part I: Stereo jacks and the XB360 headset connector

What is a stereo jack (2.5mm or 3.5mm)?

This figure illustrates a stereo jack with three rings (available as 2.5mm or 3.5mm jack, respectively):

(picture taken from http://de.wikipedia.org/wiki/Klinkenstecker)

Three cables are attached to the three segments of the jack:

1. Left (audio); color: white or red
2. Right (audio); color: red or white
3. Ground (GND); bare

What has this to do with the XB360 chat cable? A lot because the jack that you plug into the XB360 controller is nothing else than a normal 2.5mm stereo jack. The only difference is that one audio cable is used for the microphone and the remaining audio cable is used for the speaker output.

Here comes another figure:

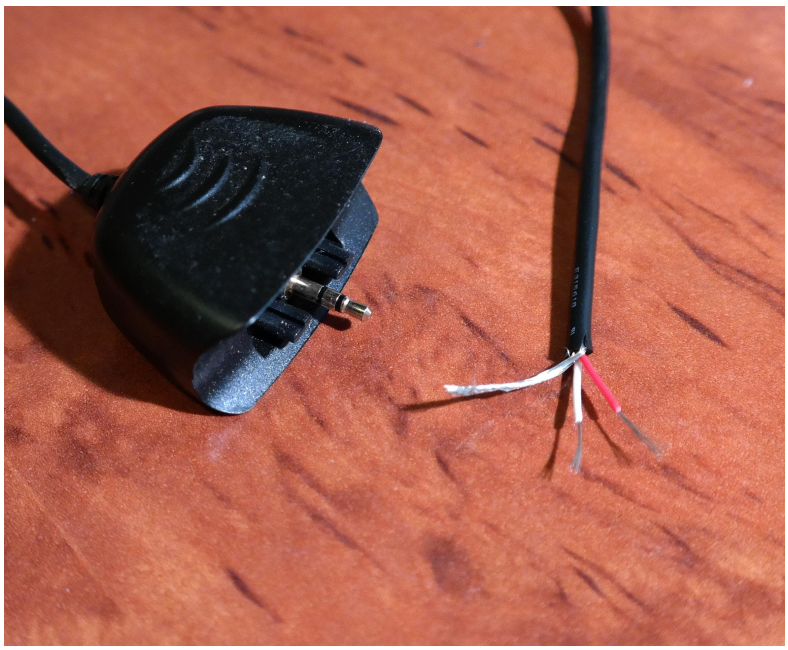

Figure 1: XB360 headset chat cable.

The left-hand side of the photo shows the 2.5mm stereo jack with some plastic around it so it can be firmly attached to the XB360 controller. Please recall, this is

just a standard 2.5mm stereo jack. If this cable is broken, you can just order a standard 2.5mm to 3.5mm cable e.g. from eBay replacing your broken one:

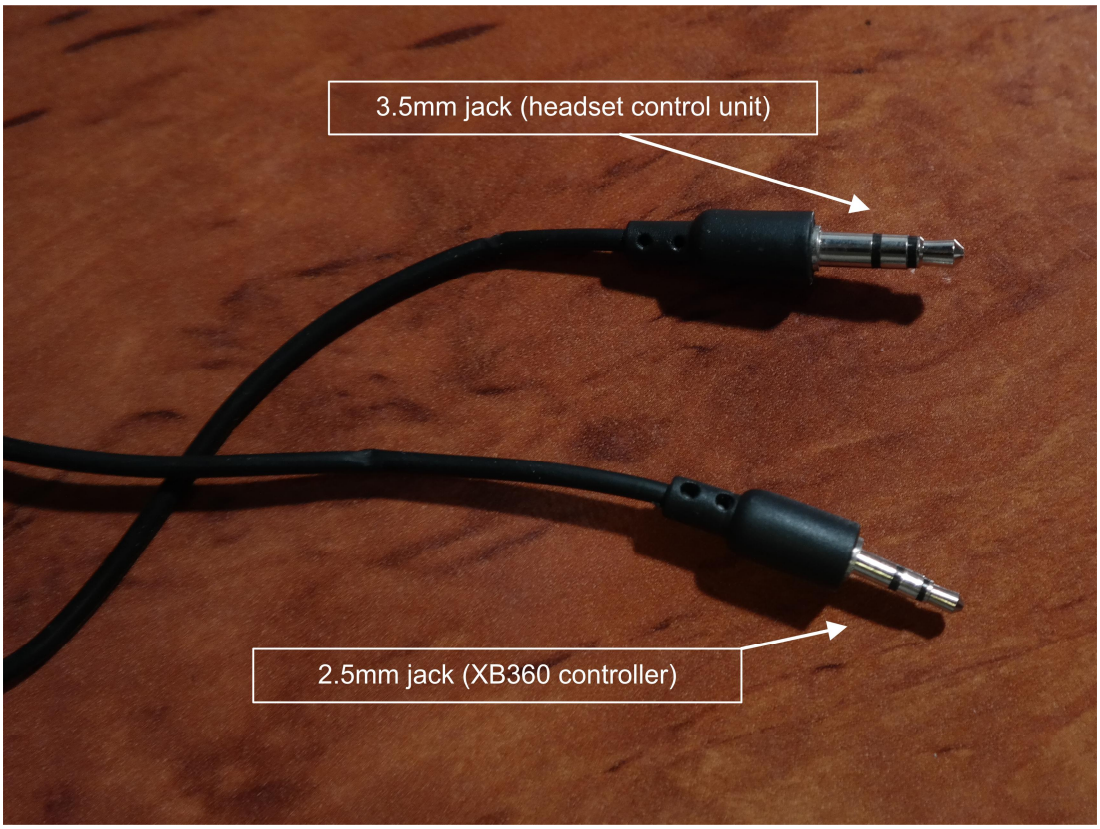

Figure 2: 2.5mm to 3.5mm jack stereo cable (found on eBay).

The right-hand side in Figure 1 shows the three cables (from left to right): bare (GND), white (1st audio channel → speaker), and red (2nd audio channel → microphone).

PLEASE NOTE:

*There are videos on YouTube telling you that **white** is always the microphone wire. This is just not true at least for your legacy headset. Because the chat cable is nothing else than a normal stereo cable, the manufacturer of your legacy headset may connect an arbitrary colored cable to either the speaker or the microphone, respectively.*

You have to find out by yourself using e.g. a continuity tester (see below).

A good tool for *debugging* or *analyzing* cables is the so called "*continuity tester*" (German: "*Durchgangsprüfer*") as illustrated here:

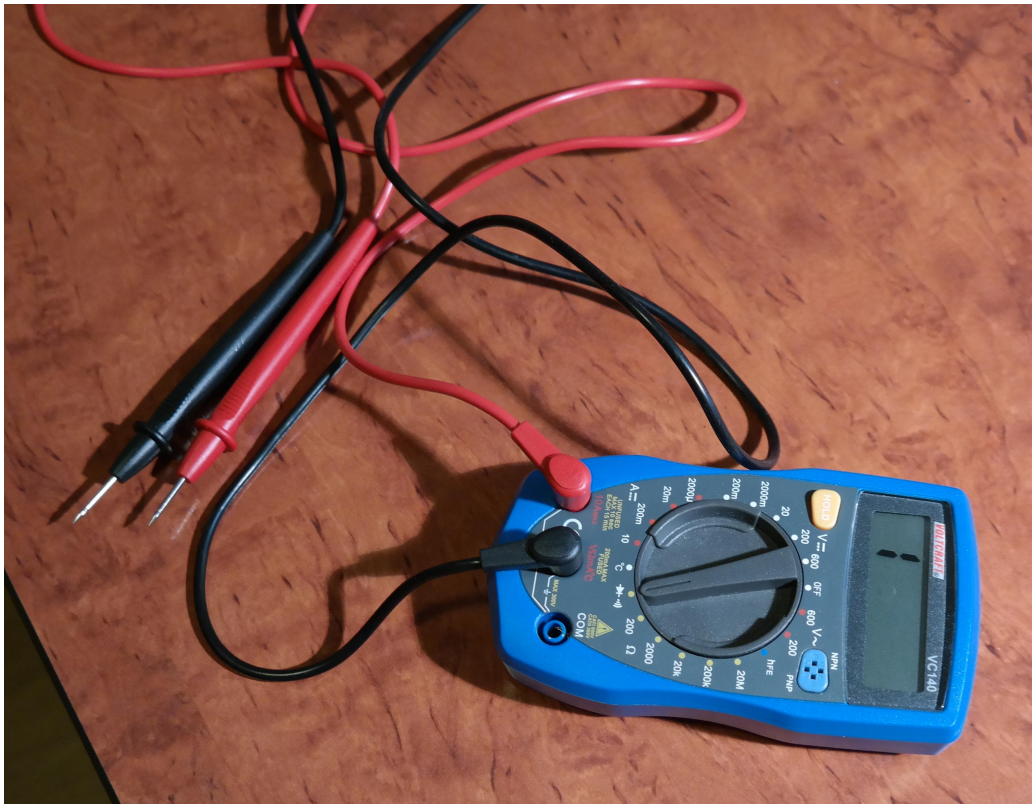

Figure 3: Continuity tester (German: „Durchgangsprüfer“).

This device (the one shown here is a “*multimeter*”) displays a “1” (one) if something is **not connected** (the black and red pikes are currently not connected) and changes to “0” (zero) if you attach the two pikes to the opposite ends of one single cable (meaning “**connected**”).

How does my setup looks like?

I own a Sharkoon X-Tatic 5.1 (surround) headset with an optical connector that I attach to the XB360’s optical out. The headset comes with a so called “*chat cable*”, which is exactly what I discuss here: 2.5mm jack to 3.5mm jack. The 3.5mm jack is plugged in a small control unit, which is part of the headset. The other end (2.5mm jack) is obviously plugged into the XB360 controller.

All sources I found in the web state that the following jack segments apply to the XB360 headsets[1] (the jack is comprised of three segments):

1. top segment is microphone;
2. middle segment is speaker output;
3. remaining segment is ground.

Figure 4 illustrates this for both the 2.5mm and the 3.5mm stereo jacks:

[1] And I personally validated this!

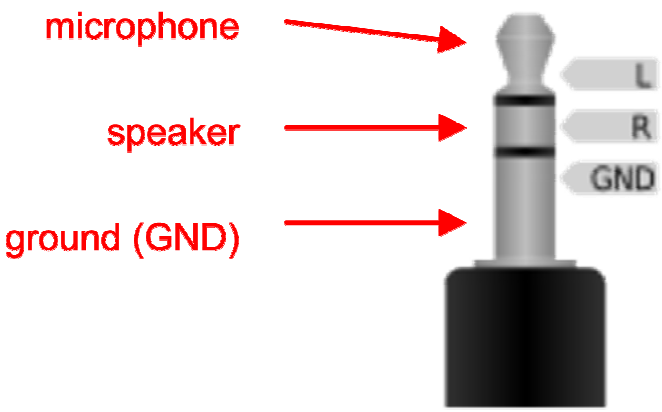

Figure 4: 3.5mm stereo jack and XB360 „cable mapping“.

As said before, you can check this with the continuity tester.

Part II: The XB1 (XBOX ONE) headset connector

The main problem is always a “proprietary connector” as Microsoft provides with the XB1 chat cable:

Figure 5: XBOX ONE chat cable connector (controller side).

Obviously, you cannot use your XB360 headset without modification (☺).

The XB1 chat cable **does not have three** (speaker, microphone, and ground) but **four** wires:

1. bare (copper, ground GND);
2. white (microphone);
3. blue (speaker);
4. black (the so called “*speaker ground*”).

The last wire (black) is really a special one: I found one statement in the web that this is not a “normal” 0V ground but a special +1V ground associated with the speaker. This 1V ground (black wire) may help Microsoft to save some money manufacturing the headsets. Just google for it and you will find some information about this black wire. To make a long story short: Just disregard this black wire and **DO NOT** connect to any of the wires of your legacy headset. It would just drain the batteries of your XB1 controller.

Sidekick: Disassembling the XB1 chat connector

If you want to find out what is in this XB1 chat connector, then you can use a TORX 5 screwdriver to open it. There is a plastic cover that you have to remove first. After that, you see five T5 screws: three black ones and two silver ones.

After you have removed the screws, the connector looks like this (small circuit board):

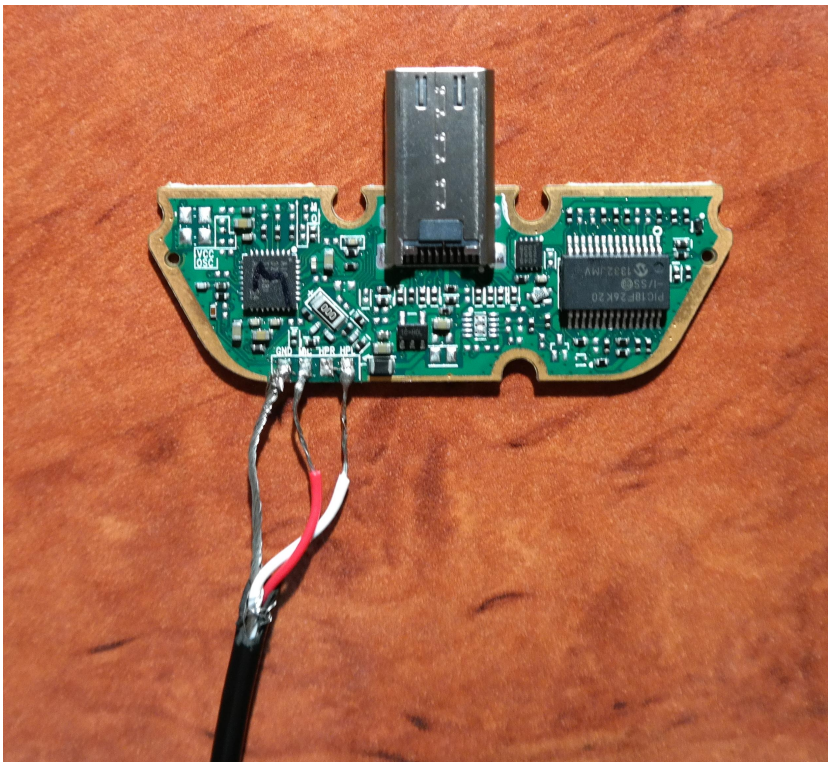

Figure 6: Small circuit board (XB1 chat adapter) with already soldered wires.

Please disregard the three soldered cables because I attached my legacy XB360 headset directly to the pins (by soldering) – this was just another experiment[2].

[*As you can see: **red** is microphone for me, white is speaker.*]

[2] By the way, this is another method of attaching your legacy chat cable to the XB1 chat connector: Find out what are the right colors (continuity tester), desolder the original wires, and finally solder the legacy wires to the pins. You may have to drill another hole in the adapter so that the wires "*find their way*" out of the adapter.

I zoomed the four pins to illustrate the original pinout:

Figure 7: Original pin out (XB1 chat connector).

From left to right:

Pin no.:	Label:	Purpose:	XB1 chat cable color:
1	GND	ground (0V)	bare (copper colored)
2	MIC	microphone	white
3	HPR	speaker ground (+1V)	black (DO NOT CONNECT)
4	HPL	speaker	blue

Table 1: pinout of original XB1 chat connector.

First possibility: “*Cut’n solder*”

That is was I did after watching one of the nice YouTube videos: You just cut the chat cable of your legacy XB360 headset as you do with your new XB1 headset cable (obviously voiding the warranty of it ☺).

After that, you just connect:

1. bare (legacy, often: silver) to bare (new, copper colored)
2. ??? (legacy, speaker) to blue (new cable, blue is speaker)
3. ??? (legacy, microphone) to white (new cable, white is microphone)
4. black (new cable) to “*nowhere*”

Again, the three question marks (???) emphasize that you have to find out the right colors of your legacy chat cable by yourself (see below).

Do not try to isolate the wires of the XB1 chat cable using a tool: these wires are too thin. Instead, use a lighter to burn the ends of the white or blue wire, respectively.

Second possibility: Solder a female 2.5mm jack to the chat cable

I personally prefer this solution. You have to buy a female 2.5mm jack from your favorite electronic shop (for German readers: you can get one from e.g. Conrad Electronics here: http://www.conrad.de/ce/de/product/703761/ - just one €).

The jack looks like this:

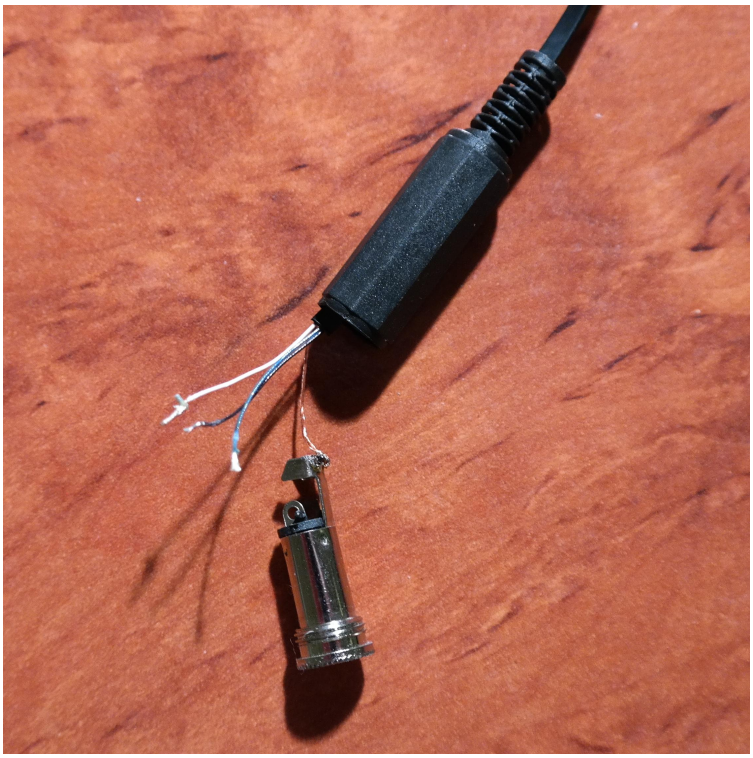

Figure 8: 2.5mm female jack.

Figure 8 shows not only the jack but also the cables from the XB1 chat cable. I will guide you through the entire process. On the left-hand side of Figure 8 you can see the wires (from left to right) white (microphone), black (nonsense), and blue (speaker). The bare wire was already soldered to the jack.

Step 1: Remove the soft cover from the XB1 headset

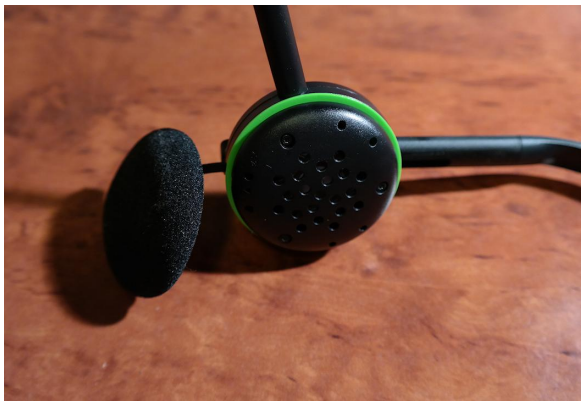

Figure 9: Step 1: Remove soft cover with screwdriver.

Just take a screwdriver to carefully remove the soft cover (left-hand side of Figure 9).

Step 2: Disassemble the XB1 headset

There are three TORX 5 (T5) screws[3] that you have to remove first:

Figure 10: First three T5 screws removed, headset open.

[3] Some people report that there are XB1 headsets that come with T6 screws.

Step 3: Carefully desolder the black and blue wires

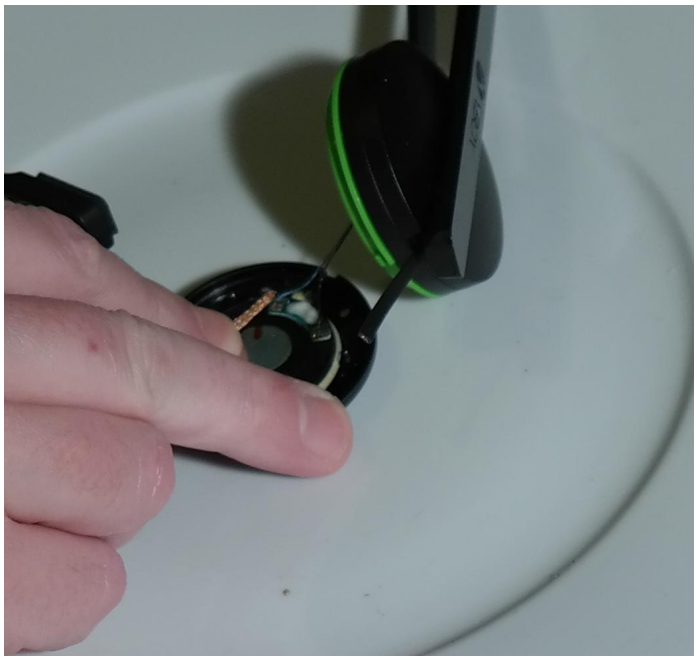

Figure 11: Desoldering of black and blue wires.

As you can see in Figure 11, I prefer the desoldering braid (German: "*Entlötlitze*") instead of using a desoldering pump. But that is up to you. By the way, I am always working with a standard 25W soldering iron:

Please note that the white (microphone) and bare (copper, ground) wires are connected like a Y connector to the main bunch of four wires. Just cut them to end up with the four wires (bare, white, blue, and black).

Step 4: Remove the remaining four T5 screws

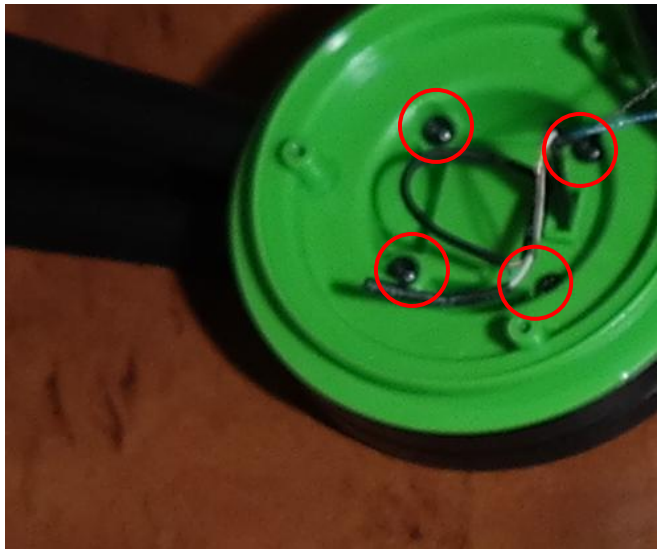

Figure 12: Four remaining TORX 5 screws.

It is now time to remove the remaining four T5 screws (Figure 12). After that, gently pull the chat cable out of the headset.

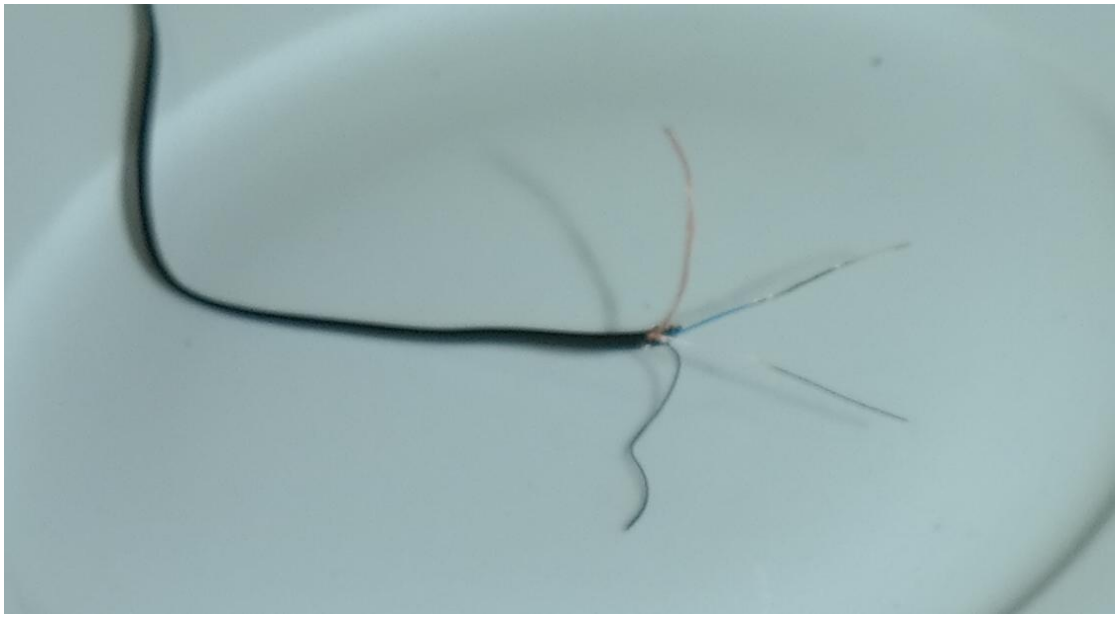

Figure 13: XB1 chat cable with four wires (bare, blue, white, and black).

Figure 13 shows the intermediate result i.e. the cable with the four wires.

Step 5: Solder three of four wires to the 2.5mm female jack

The final step is just soldering. Even if you should not be very experienced soldering stuff, this is really easy. You have to solder the bare (copper) wire to the end of the jack. Again, you can always plug a 2.5mm to 3.5mm cable in the jack before soldering. Using the continuity tester, you can quickly find out which wire has to be soldered where.

In Figure 14 I marked pins where I soldered the wires:

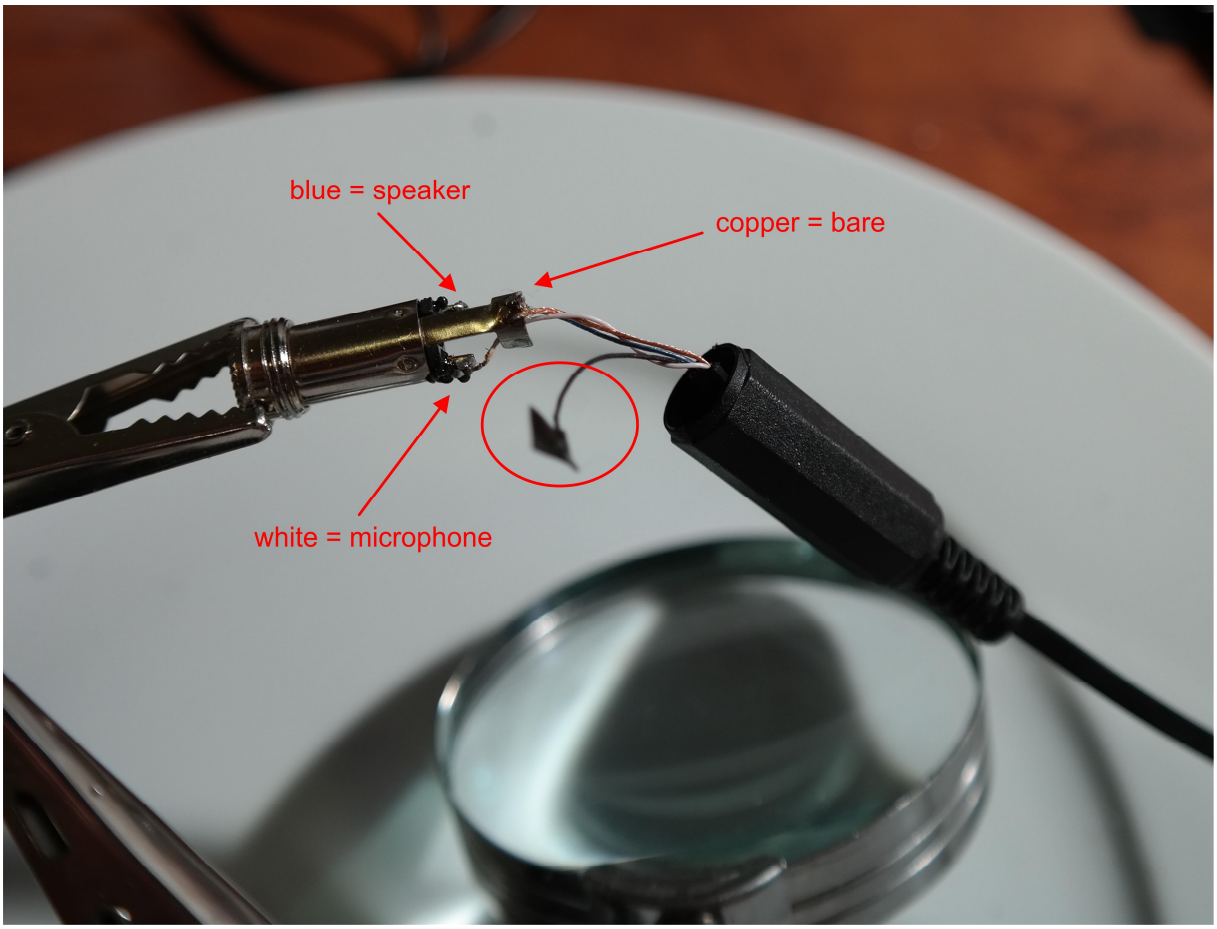

Figure 14: 2.5mm female jack with soldered XB1 chat cable wires.

As you can see, the black wire was just wrapped with some black tape. You can finally assemble the jack:

Figure 15: The result.

Figure 16: XB360 chat cable attached to XB1 chat cable.

I finally wrapped the female jack with some black tape to make it a little more robust. In Figure 16 you can see the XB360 jack attached to the XB1 chat cable. I had to remove some small plastic parts from the XB360 connector in order to make the female 2.5mm jack fit.