

ORB (Online Remote Base) Control Device Audio Adjust Jumper

Too Much Yapster Audio? ... Then Try Removing the +20dB Jumper!

by Gene Hinkle, K5PA

Introduction

I have been using the ORB Control Device sold by Remote Hams (www.remotehams.com) for several months now and have really enjoyed the easy-to-use interface.

One shortfall was the high sensitivity of the audio levels to my favorite headset, the Yapster. The Yapster has a electret microphone element that is powered by the ORB Control Device. But the audio levels were always considered too hot and the gain adjustments had to be towards the low end. This technical note addresses a simple gain adjustment that is internal to the ORB Control Device hardware but not very well publicized until now!



Figure 1. Author's ORB Control Device with PTT Switch and Yapster Headset

If you also have a hot microphone, you can check the internal jumper setting and make the appropriate adjustment.

Hardware Audio Adjustments

The internal circuit board assembly can be removed from the ORB Control Device by carefully removing the 4 small screws that attach the front panel (the one with all the connectors shown in Figure 1). This will allow you to inspect the Audio BOOST 3-pin header with jumper short installed.

Figure 2 shows the board removed and the location of the jumper identified inside the red box area in the photograph. This area is enlarged in the inserted photo with the jumper removed. Here all 3 pins are shown clearly. The jumper module, that is already installed as shipped, can be moved to the position to the right (marked **+20dB**) or to the left (marked **OFF**).

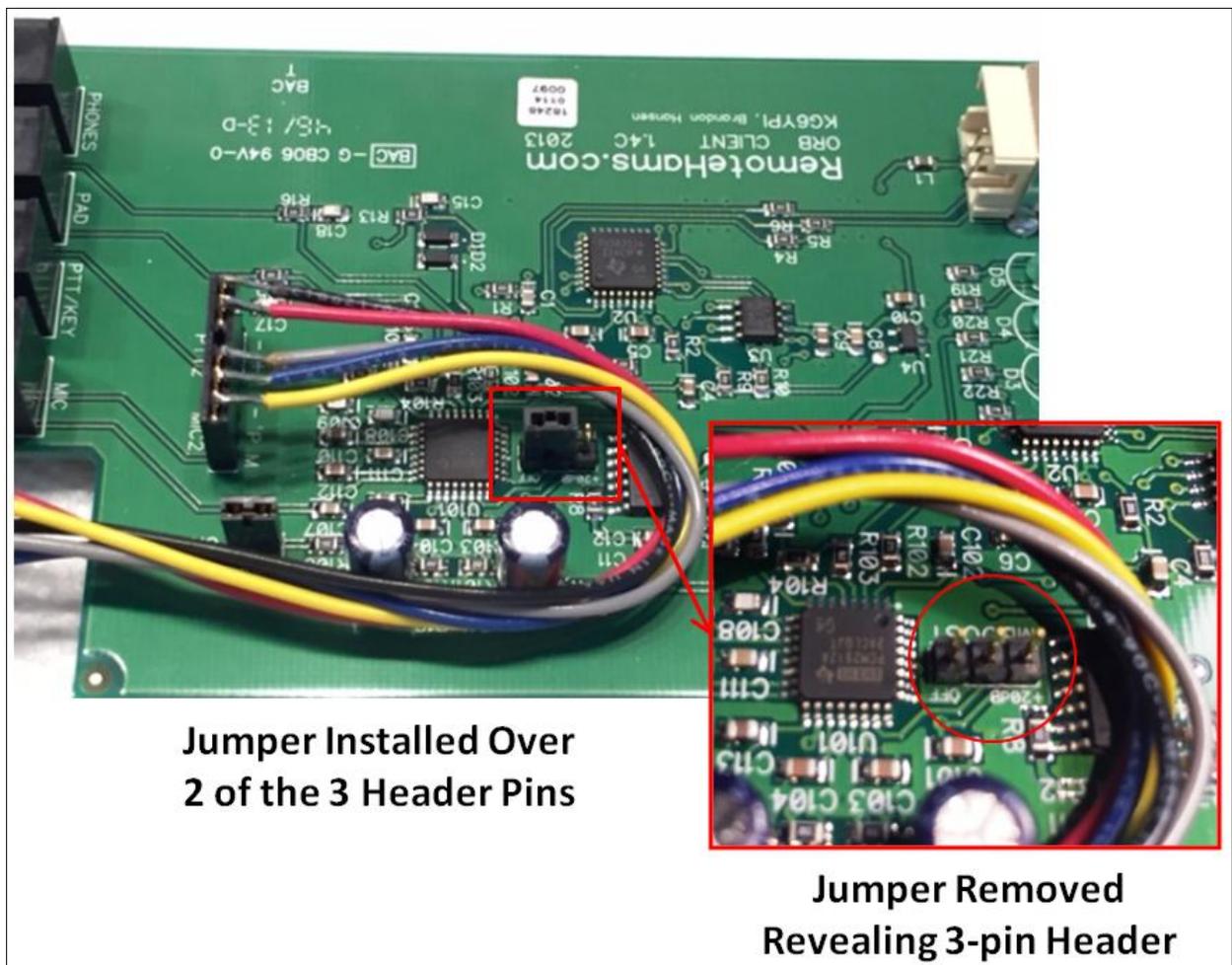


Figure 2. Photograph of ORB Control Device Circuit Board Assembly

Figure 3 shows a close up of the jumper with the markings for **+20dB** and **OFF**. These are shown upside down in my figure. The jumper is a simple 2 position short circuit that is slide over 2 of the 3 terminals at this location. I have the jumper set to the OFF location. However, the jumper was initially set to the +20dB as received from the manufacturer. Yours could be set either way and would need to be verified.

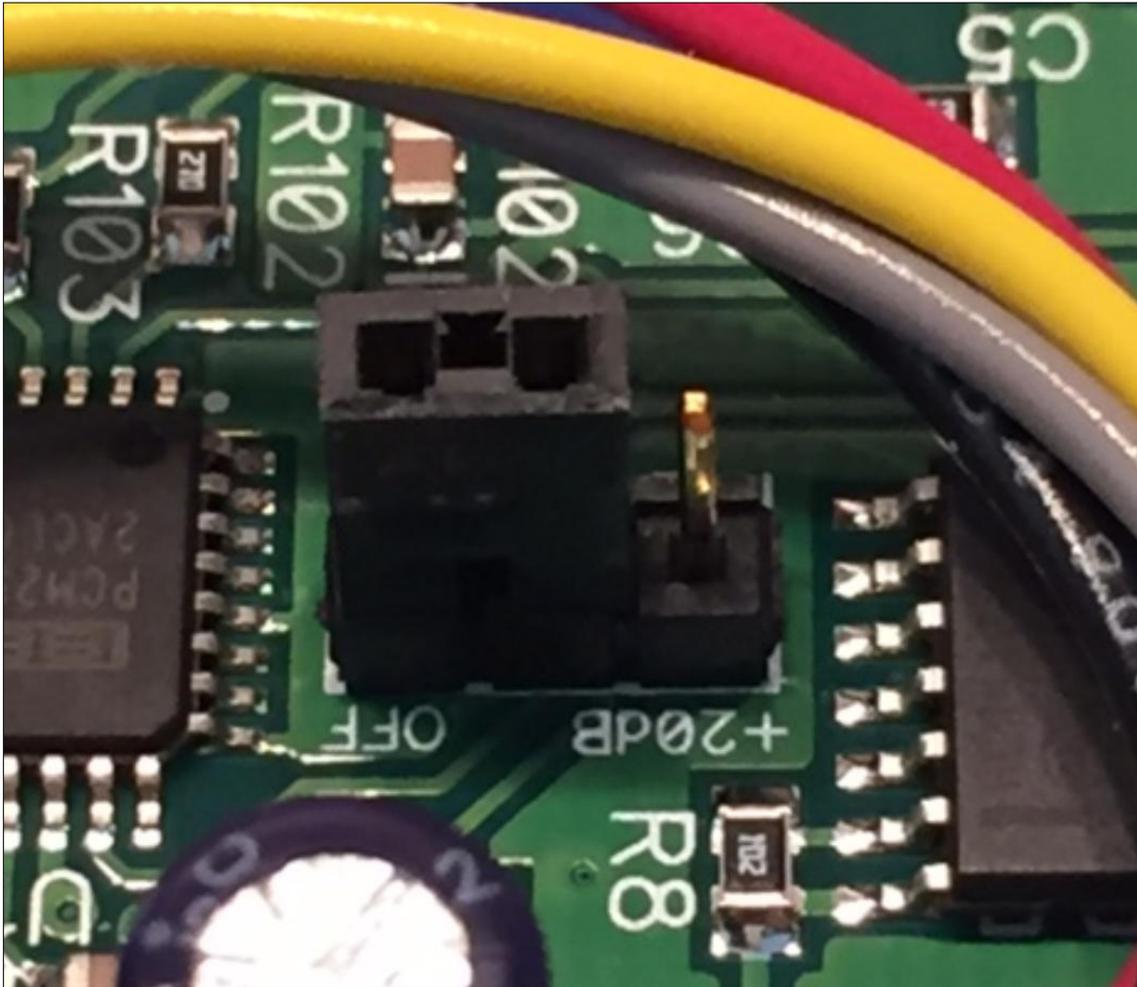


Figure 3. Photograph of +20dB and OFF Position and Jumper

Once the jumper is set to the audio gain desired, **OFF** if the transmitted audio was too hot, then you can carefully reinsert the circuit board assembly and screw the front panel back on the ORB Control Device.

Next, the gain settings in the driver needs to be checked.

Software Audio Adjustments

The software **RCForb_Client** is next run from your computer. The audio settings can be found (v0.8 software) under the **Options** then **Audio Device Settings** selection. The panel that is display is entitled **Voip Device Settings** and shown in Figure 4 below.

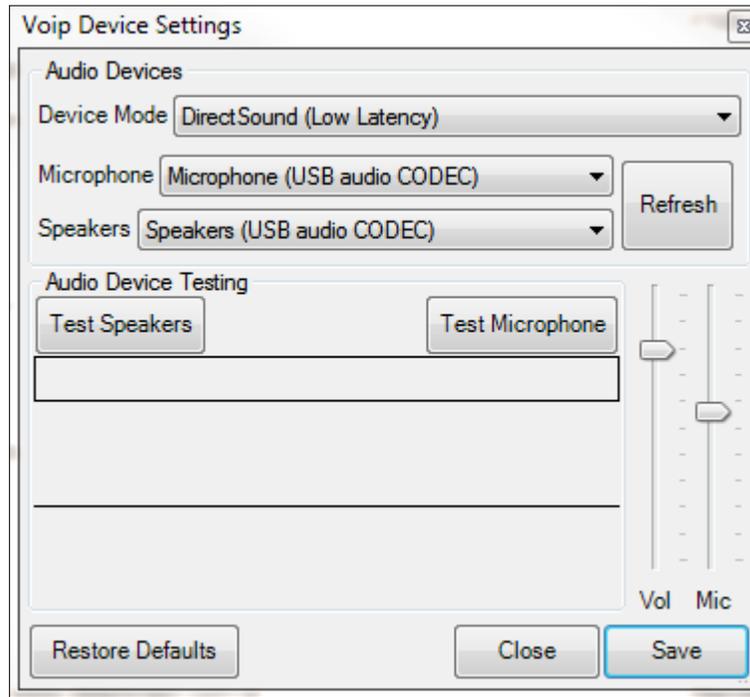


Figure 4. RCForb (Client) Software Audio Adjustment Interface

The Microphone and Speakers in my tests were using the ORB Audio Device as shown by selection of the **Microphone (USB audio CODEC)** and **Speakers (USB audio CODEC)** sources.

You can set the audio Mic and Vol levels and then press the Test Microphone button and begin to speak into the microphone. After you stop speaking, the audio will be automatically played back and you can check for the proper sound and levels. The waveform will turn to a red color if you are over driving the ORB Device. Thus, you will need to repeat this adjustment until you are happy with a clean but strong audio level. When happy with the adjustment, press the Save button and Close to exit.

Push-to-Talk (PTT) Feature

Another feature I liked about the ORB Audio Device is the ability to use a simple switch closure to perform a Push-to-Talk command on the transmitter. There is a PTT 3.5mm jack on the front panel that can be connected to a

finger switch, a foot switch, or other switched connection. The connection is simply a Single-Pole-Single-Throw (SPST) type of switch closure. Figure 5 shows my selection of a rubberized switch that is wired to a 3.5mm plug.



Figure 5. Photograph of a SPST Switch Wire to a 3.5mm Plug for the PTT Function

To allow the ORB Control Device to recognize the PTT switch, the Options then Control Device Setup needs to be selected. This will bring up the interface panel shown in Figure 6. You will need to select the correct **Serial Port** for your installation for the ORB Control Device. The figure shows that mine is set to **COM16** but yours will almost certainly be different.

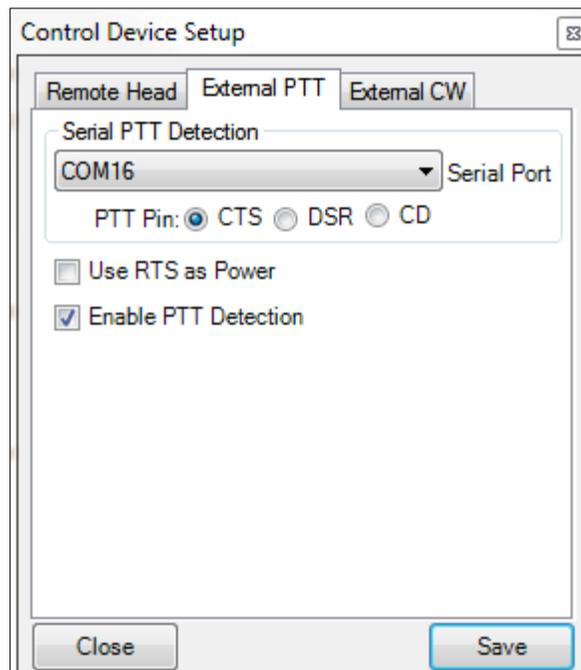


Figure 6. Photograph of PTT Interface Panel

Under the *External PTT* tab, *PTT Pin: CTS* selection should be made.

Lessons Learned

Here is a brief summary:

- Using the ORB Control Device resulted in very high transmit audio levels that were difficult to adjust downward. I have been using the Yapster headset that utilizes an electret element;
- The ORB Control Device was set to a +20dB audio gain as received from the factory that was the wrong setting for use with my headset;
- A simple inspection revealed a +20dB jumper inside the ORB Control Device that is easily changed using a short over a 3-pin header;
- The RCForb (Client) is also easily adjustable to arrive at the best setting; and
- A Push-to-Talk (PTT) feature was easily implemented using a simple switch closure and a 3.5mm plug.

Internet Link References

1. ORB Control Device

<http://www.remotehams.com/products.html>

2. ORB Control Device User Manual

http://www.remotehams.com/assets/pdfs/ORB_Control_Manual.pdf

3. RCForb_Client

<http://download.remotehams.com/>