Audio Interface Unit (AIU) for the Icom 746/756 Radios

Keeping it simple to interface to your Icom Radios from a Computer Headset

by Gene Hinkle, K5PA

Introduction

I enjoy operating my Icom transceivers using a headset with boom microphone. There are a proliferation of inexpensive, quality audio headsets used in computer gaming applications. Examples of these are the , Yapster or Yapster Plus (TM-YB100P). The Yapster is shown in Figure 1.

Figure 1. Example Headset (Yapster)

These headsets have the computer standard 1/8 inch line cord plug for the headphone and for the microphone element. This means 2 plugs must be interface to the radio communications equipment that typically would have an 8-pin Foster socket, RJ45 socket, or 1/8 inch plug. The Icom Audio Interface Unit (AIU) solves the problem of routing of audio transmit and receive signals and push-to-talk transmit control from inexpensive gamer headphones to the Icom style radio equipment.

The design requirements set for the AIU was

1) Small size for palm use,
2) Push button for PTT transmit control but still support VOX, and
3) Two 1/8" jacks for interfacing to the gaming headset.

My finished prototype of the AIU is shown in Figure 2. It meets all of my requirements and is a pleasure to use.

Figure 2. Prototype AIU For Icom 746/756 Radios Using Foster 8-pin Jacks

Electrical Schematic Diagram

The electrical schematic is shown in Figure 3. A larger version of the schematic is included at the end of this technical note.

Since I was interfacing to the Icom 746/756 style transceiver, I was interested in having the Mic and Headphone connectors being part of the AIU. I used a single Foster 8-pin Mic plug (Item #2 on schematic) that tapped into the audio output pin at the mic jack (pin-8) for receive audio. If your application does not have receiver audio on the Mic jack, then a separate 1/8" or 1/4" phone plug will be necessary to bring the audio to the AIU box. The wire colors within the cable is noted on the schematic and will be determined by the actual cable used. Also, if other radios are being interfaced, the cable hardware would be changed accordingly.

The schematic shows the receive audio being routed to both left and right headphones in parallel. If a different transceiver is interfaced that has independent left and right receiver channels (e.g., dual receiver radios), then they would be connected to each headset separately.

The PTT Push button (Item #1 on schematic) is a momentary, normally open (N.O.), switch used as the push-to-talk (PTT) on the radio. Depending on the radio being interfaced other pins should be connected to the PTT push button based on the radio connections. Although a PTT switch is included, you do not have to use it if you prefer Voice Operated Transmit (VOX) operation and your transmitter supports it.

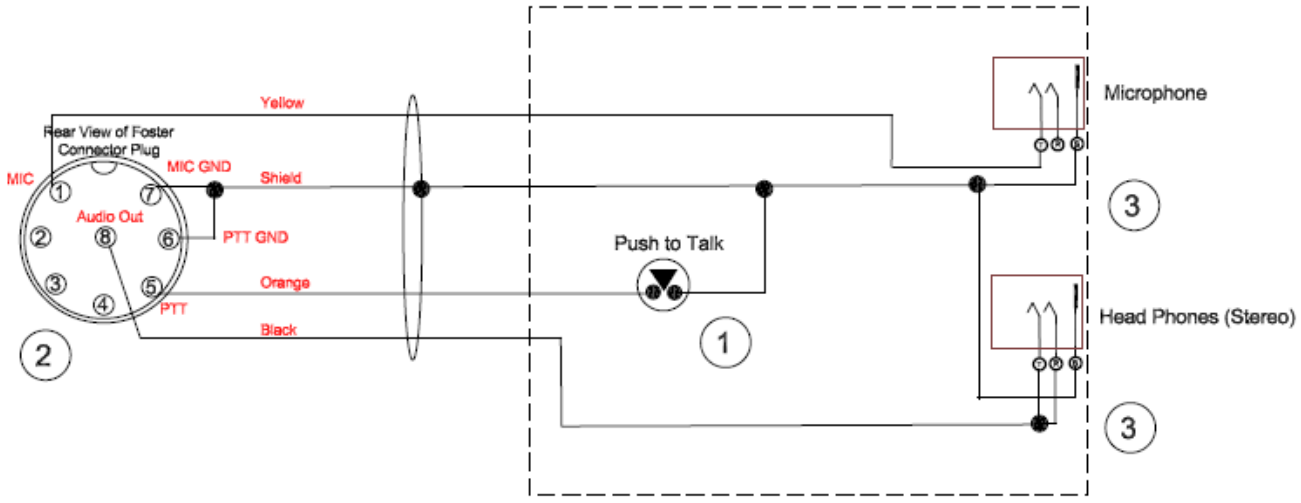


Figure 3. Schematic Diagram for the Audio Interface Unit

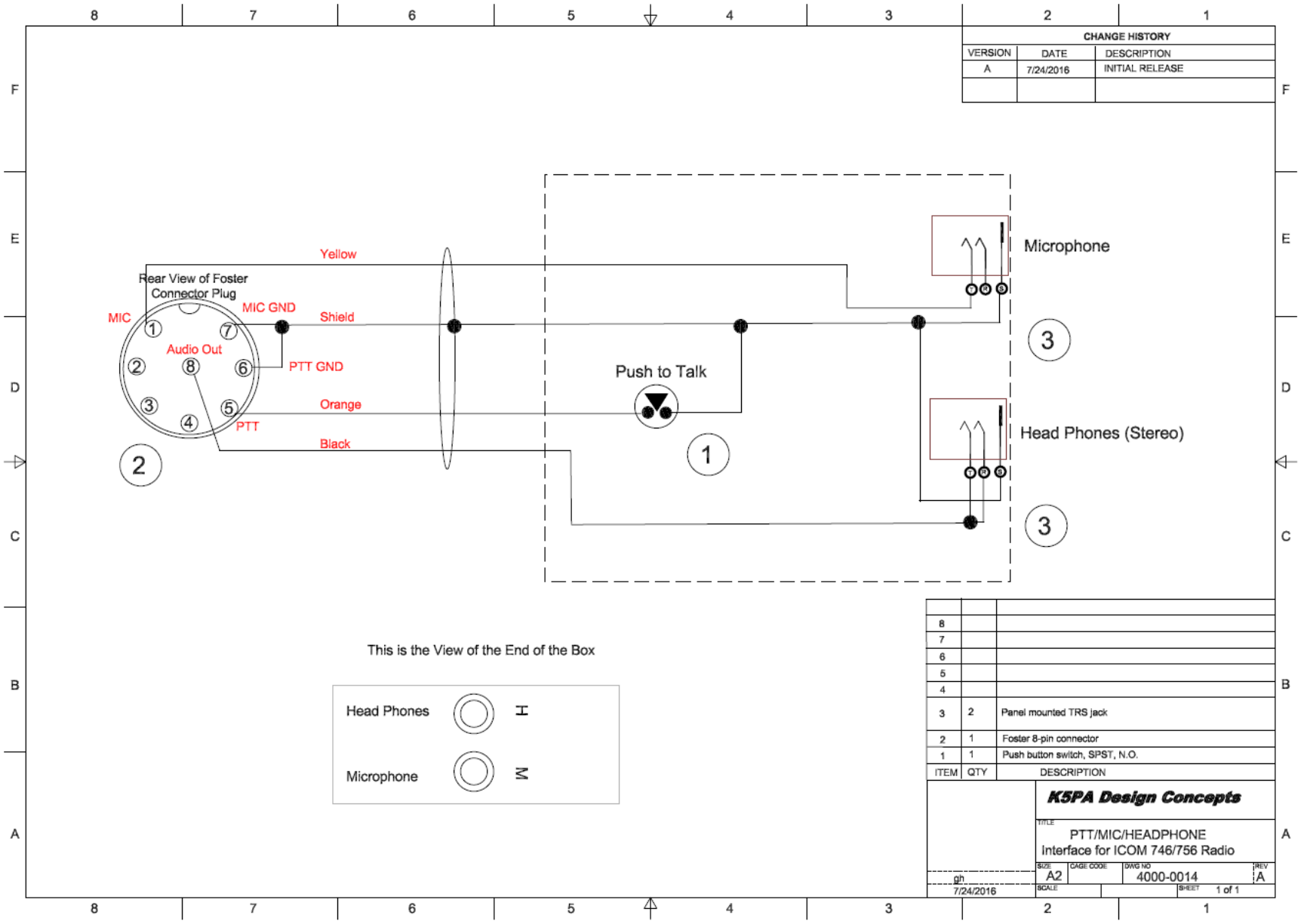
Prototype Construction

The prototype unit is shown in Figure 4. A small (2 x 3 x 1 inch) plastic container is used to mount the switches, jacks and cables. The container is small enough that it could be held in the palm of your hands or left on the desk top.

Summary

A small audio interface unit (AIU) was designed and implemented as a prototype unit to permit inexpensive headsets to be used with commercial/amateur radio equipment. The AIU met the goals set for the unit by making it small, hand held, and push button PTT control or VOX switching.

A schematic of the unit as designed for use with the Icom 746/756 transceivers was given.


CHANGE HISTORY
VERSION | DATE | DESCRIPTION
A | 7/24/2016 | INITIAL RELEASE
Yellow
Rear View of Foster Connector Plug
MIC
MIC GND
Shield
Audio Out
PTT GND
Orange
PTT
Black
Push to Talk
Microphone
Head Phones (Stereo)
This is the View of the End of the Box
Head Phones
Microphone
ITEM | QTY | DESCRIPTION
3 | 2 | Panel mounted TRS jack
2 | 1 | Foster 8-pin connector
1 | 1 | Push button switch, SPST, N.O.
K5PA Design Concepts
PTT/MIC/HEADPHONE Interface for ICOM 746/756 Radio
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