



## PA System Description 5/18/23

The PA System distributes the mixed music track and the announcer's audio signal to the load speakers in the infield. ONLY the announcer's voice is sent to the load speakers outside the ticket office. The music track comes from the computer at the dispatcher's desk.

The voice and music signals are sent to the infield speakers via an FM RF transmitter located in the battery barn. The FM transmitter set to 88.5 MHz.

The FM signal is received by a 'boom box' mounted under the north end of the mail car.

The announcer track is sent to the Ticket Office through the unused wires in the telephone cable.

## Executive turn on procedure

**All of the equipment below is left on and should not normally need attention. In the event of a power failure all of the equipment usually comes on automatically EXCEPT the boom box mounted under the north end of the RPO car. Just press the ON/OFF button and the system will be operational within 10 seconds. This should be set to FM 88.5 and the volume level set to 25.**

### For a full power up of the system:

Turn on the FM transmitter in the battery room. Verify it is set to 88.5 MHz

Turn on the mixer in the yard office. Plug in the wall wort power supply. The is an LED power indicator.

If the radio is on and set to 88.5 MHz, talk into the microphone and it will be heard on the radio.

Turn on the boom box under the north end of the RPO. Verify it is set to FM and 88.5 Mhz. The volume level should be set to 25

Turn on the Tuner amplifier in the Ticket Office. Verify it is set to the CD input and the volume is set to 60.

Adjust Music Level control to have Left -20 LED flicker.

Adjust PHONES control to set audio level for speaker outside yard office.



### More stuff to know

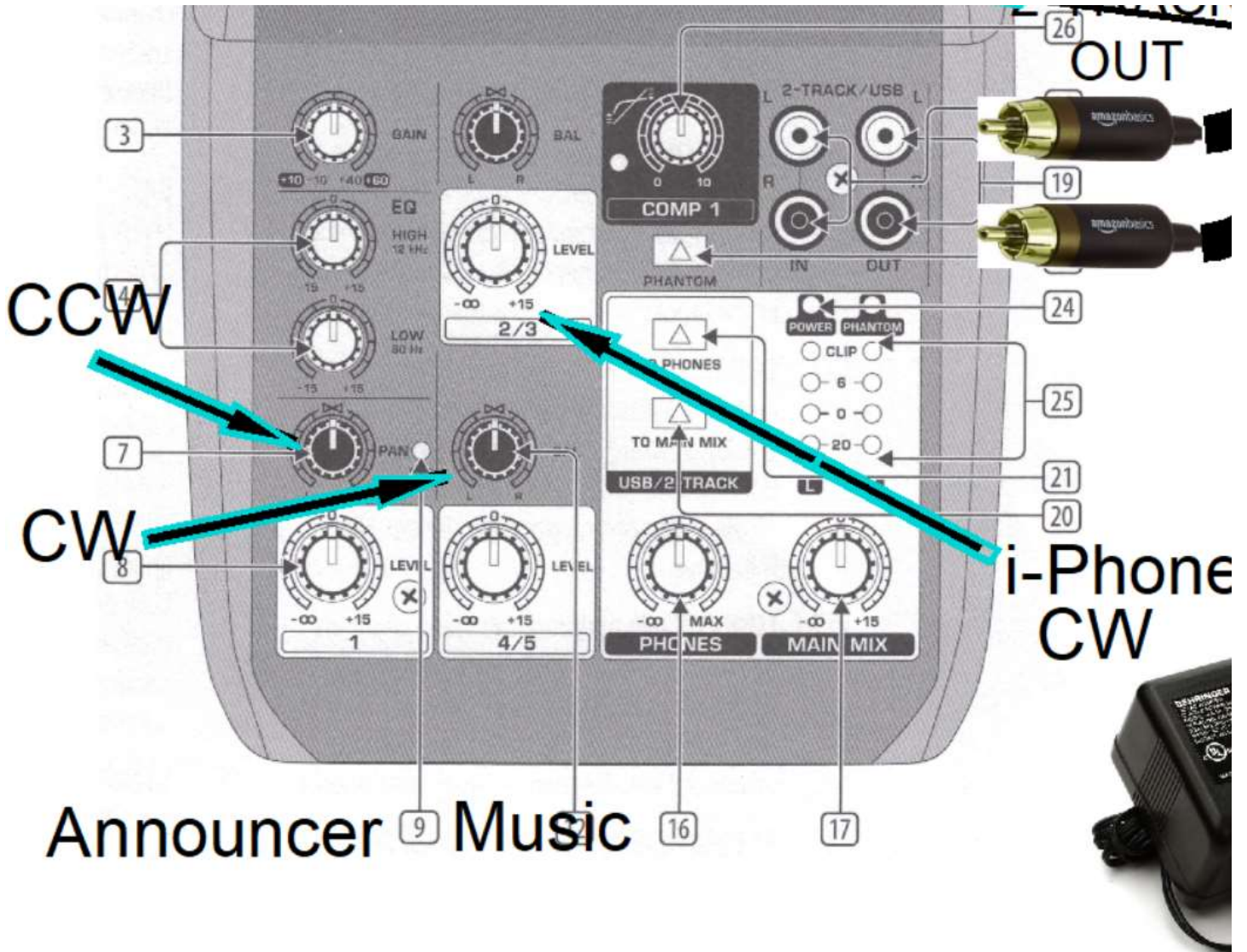
### Play a music track

The source of the music is the computer. If you have a CD, install it in the computer and use Media Player.

You can also stream audio from the internet to feed the music track.

The music track will not play at the ticket office. It will play on the infield speakers and the horn on the yard office.

### Mixer Controls:





Input 1 on the mixer controls the microphone gain. Level should be set to 12 o'clock.  
Input 2/3 on the mixer controls the music track gain. Level should be set to 12 o'clock.  
Input 4/5 is not used. Level should be set to full counter-clockwise position.  
MAIN MIX controls the levels to the transmitter and the local speaker. Level should be set to 2 o'clock.

### **Transmitter in the battery room**

**Frequency set to 88.5 MHz**  
**Line in set to *XX O'clock***

### **Receiver in Ticket Office**

**Input set to TAPE MON**  
**VOLUME set to *XX O'clock***

### **Receiver under the RPO car**

**MODE set to FM**  
**TUNE to 88.5 MHz**  
**VOLUME set to 26**

**Computer Speaker level set to maximum.**



## System Description

The PA System distributes the mixed music and announcer track via an FM transmitter set to 88.5 MHz. The transmitter is located in the battery room. It also sends the announcer track to the Ticket Office through the unused wires in the telephone cable.

There is a microphone and audio mixer in the yard office. The FM transmitter is in the battery barn behind the kitchen. The FM receiver-amplifier mounted is under the RPO and the speakers are under the rolling stock on the RIP track. The cabling for the announcer audio from the yard office to the ticket office has an interconnection at the post near the machine shop container

The microphone, a Shure SM48, is on the desk in the Yard Office. It is plugged into the Rane Mix5 Mixer and is panned to the LEFT channel only.

The music track is from the computer in the Yard office. It is plugged into the Mixer Input 2/3 RIGHT channel. It is panned to the RIGHT channel only.

The main loud speakers are located under the rolling stock on the RIP track along with an FM receiver amplifier mounted under the RPO.

There is a speaker mounted on the outside of the Yard Office. This is fed from the Headphone output of the mixer through a mini-amplifier, next to the mixer. There is a kill switch for this speaker on the wall, in front of the dispatcher' s desk.

The FM transmitter, located in the battery room, is fed from the TAPE OUT buss through cables which has the mixed announce and music tracks.

There is a speaker mounted outside the Ticket Office. This speaker is fed from an amplifier in the Ticket Office. This amplifier receives that announce track only from the MAIN OUT LEFT output of the mixer. This signal is routed from the Yard Office to the Ticket office through unused signal wires in the telephone cable. The unbalanced audio signal is fed through balun transformers on either side of the telephone cables for transmission and reception.

There are two, 4 pair, CAT-5 cables installed in a conduit from Yard Office to a Post near the pedestrian bridge. In the yard office, one of these cables is connected to the network router. The other cable carries the telephone signals and the PA signals.

At the Post, there is an ethernet switch supplies ethernet connections to the Ticket Office and the Gift Shop. The telephone CAT-5 cable plugs into a 'pancake' module where the telephone signal is split to both the Ticket Office and the Gift Shop. The announcer audio is connected to the Ticket Office only. See the **PA System Wiring Details** drawing for more information.



There are two custom audio adaptor cables that were fabricated to make this system work. The cable from the computer to the Mxer Left input mixes the stereo output of the computer to left input of the mixer.

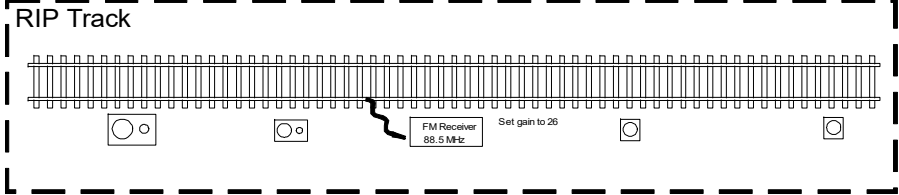
The RCA cables from the TAPE OUT L and R stereo signals are mixed to a mono track to both the L and R stereo inputs to the FM transmitter and to the mono input of the local amplifier.

See the **PA System Wiring Details** drawing for more information.

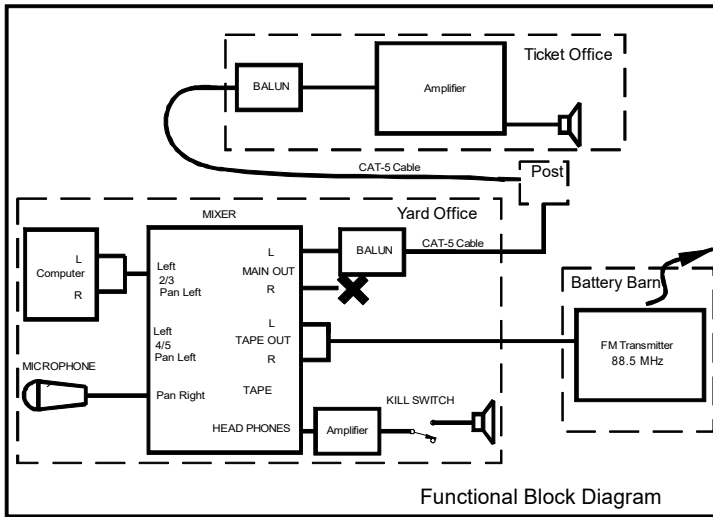
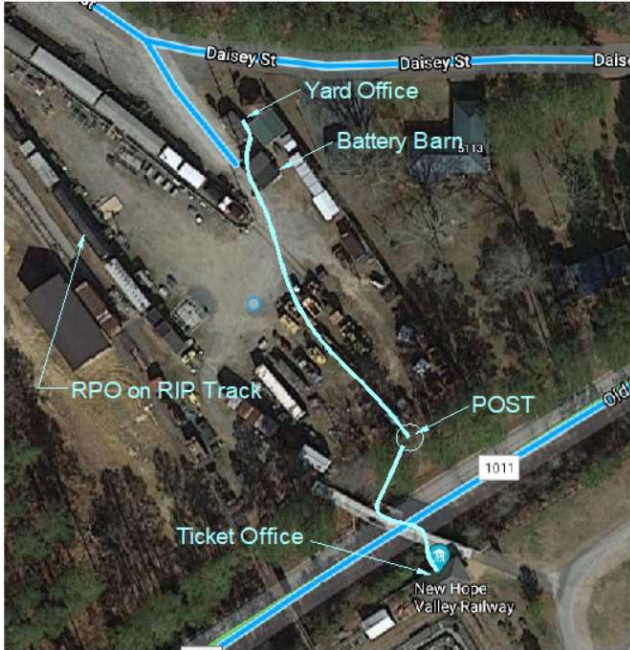
There are several other drawings and documents that show the system details:

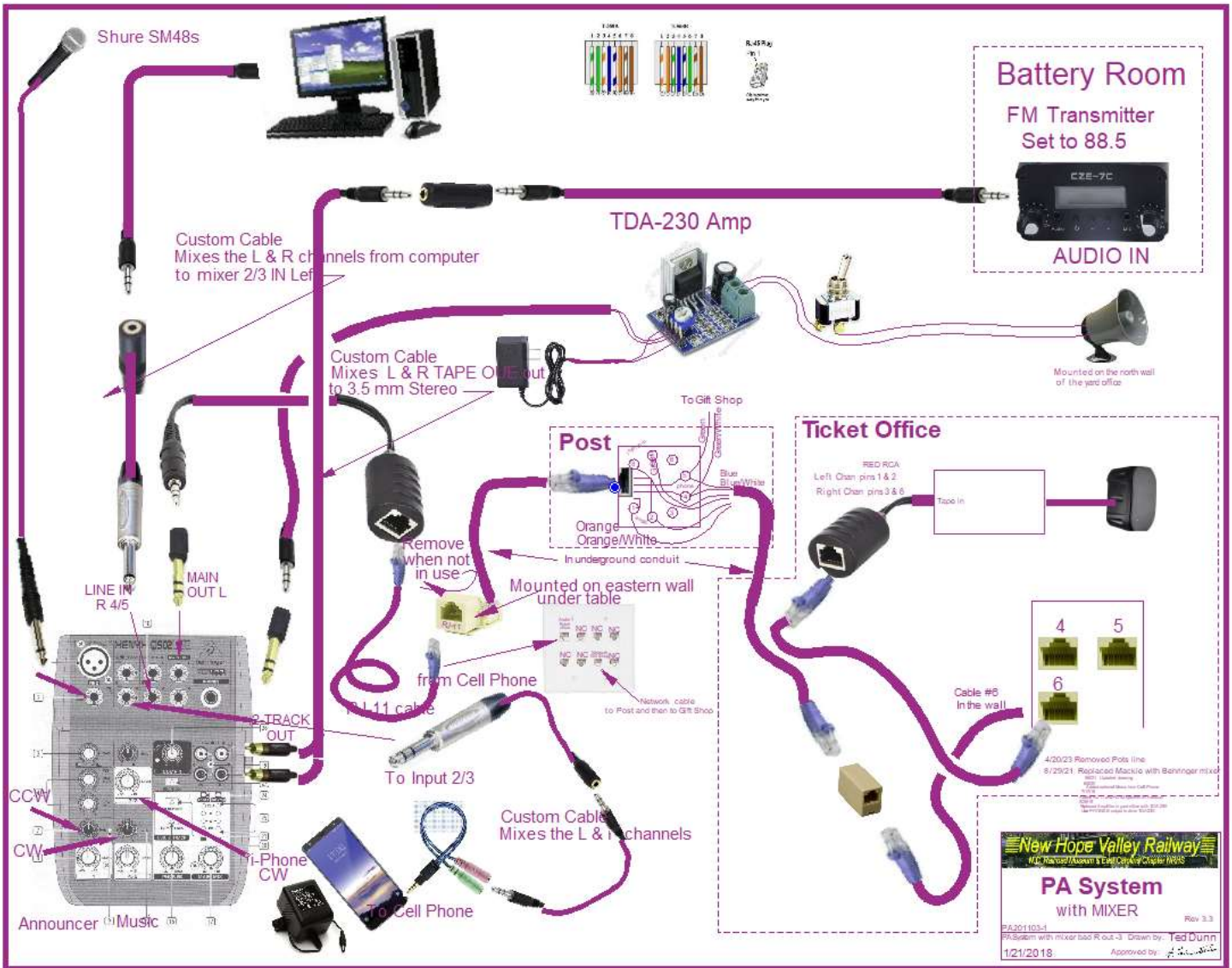
- PA System Block Diagram** drawing.
- PA System Wiring Diagram** drawing.
- PA System Wiring Details** drawing
- Phone-Data Wiring** drawing
- PA System Description** (this document).

All of these drawings are on the WEDCREW website: <http://wedcrew.yolasite.com/>  
Here is the direct link to the PA System page: <http://wedcrew.yolasite.com/pa-system.php>



# New Hope Valley Railway





**Mixer in Yard Office**



**FM Transmitter in Yard Office**

**New Hope Valley Railway**



Out

In

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**Amplifier in Ticket Office**



