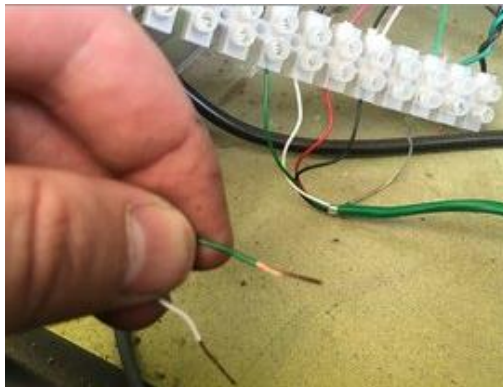
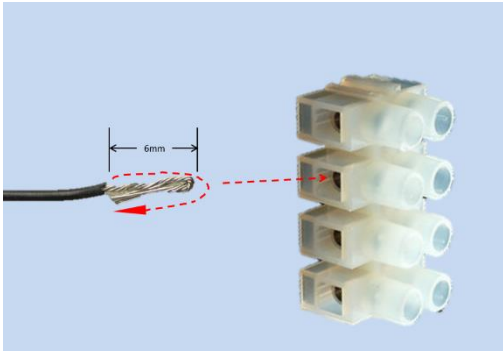


## 6700 Lesson Learned

The purpose of this document is to outline issues discovered during field visits by HME representatives and how to fix them. Issues reported were generally related to poor audio quality. This guide outlines causes, solutions and best practice wiring standards.

### Correct Wiring



### Poor Audio Quality

Bad connections at the terminal block at the stalls results in weak signal flow and low/poor audio.

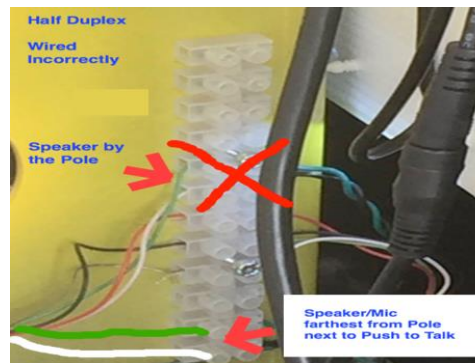
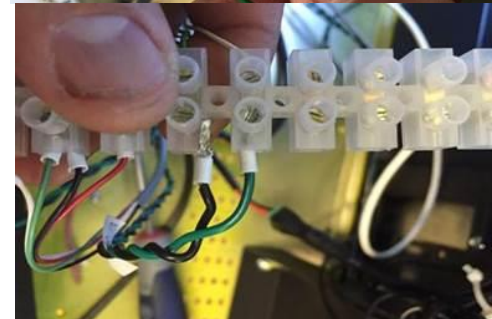
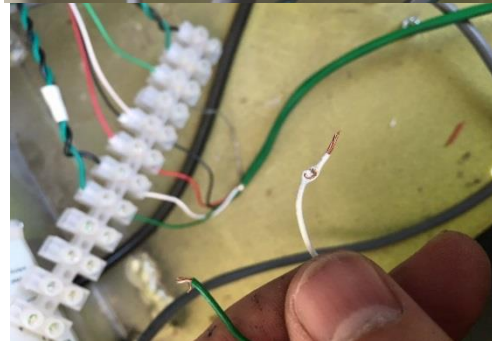
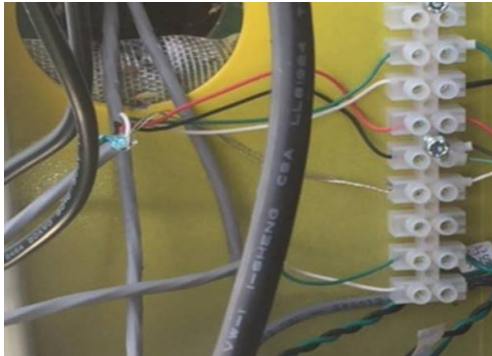
#### Terminal Block Wiring

Terminal blocks in the stalls are slightly too big for 22 AWG wiring. Most of the time a few strands are not grabbed by the screw. If the wiring is not stripped back far enough the screw pinches down on insulation instead of stranded wires. In either case, audio quality will suffer.

#### Solution:

1. Strip back insulation to reveal the 2 twisted pairs, making sure it's not too long.
2. Strip the wire insulation twice as long as you normally would, e.g., 12mm instead of 6mm.
3. Twist the strands tightly together, then fold the strands back in half, which doubles the strands and helps guarantee the wire will be securely retained.
4. Insert wire, tighten terminal block screw, and verify with a gentle tug. It's better to pull and have it fail now than later!
5. Make sure to wire the microphone as the audio element on the left part of the POP, not the right.

### Incorrect Wiring



6. Cover the shield wire with insulation
7. Check the POP/Fabcon wiring on the other side of the terminal block if any issues persist.

#### Drive Thru Audio

1. The microphone must be located at the top of the speaker post. The speaker (if full duplex) must be at the bottom.
2. Microphone and loop connections must be soldered, crimp capped, insulated with electrical tape and have strain relief with a tie wrap.

## 6700 Lessons Learned

### No Inbound or Outbound to stalls due to bad wiring

1. Inspect wiring at all components of the system and stalls.
2. If wiring looks good and the problem persists, direct connect a microphone or speaker at the base, router, and stall to determine if component or wiring is bad.

#### Solution:

Proceed with rewiring as needed.

#### Note:

**Full duplex wiring requires separate cables for inbound and outbound audio paths. Combining the two together will result in crosstalk or fluctuating audio levels.**

### Poor Audio due to Incorrect Audio Settings

Poor audio quality is often caused by incorrectly adjusted audio levels. Turning the inbound and outbound levels to maximum settings is likely to result in distortion or echoing.

If audio needs to be adjusted to max to hear adequately, this usually points to a wiring problem. Re-inspect the wiring as shown in this document and re-adjust after wiring is corrected.

#### Solution:

Check base station settings. These should be the following.

##### Half Duplex

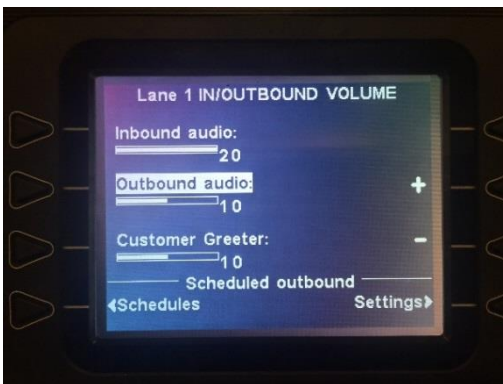
Inbound – Typically no greater than 16  
Outbound – Typically no greater than 16  
Line IN/OUT – Both set to 0  
ANC, AVC, & Echo Cancel – Off  
Mic – Half

##### Full Duplex

Inbound – *Typically* no greater than 16  
Outbound – *Typically* no greater than 16  
Line IN/OUT – Both set to 0  
ANC and AVC – Off  
Echo Cancel - On  
Mic – DM5

#### Note:

**Ensure any audio adjustments are uniformly adjusted on all base stations and saved under Installer Settings.**



## 6700 Lessons Learned

### Intermittent Muting of Audio While Talking to Customers

This symptom is easy to miss because the time between failures is so intermittent and often doesn't get reported during installation.

#### Distance Between Base Stations

Base stations must be mounted no less than least six feet apart. When measuring distances between them, *make sure to measure from the edge of the case!* Do NOT measure from the center point. Failing to adhere to the distance requirement results in interference causing intermittent muting of audio immediately or shortly after the installation.

#### Solution:

Check Base station distance. These are required to be a minimum of 6 ft. apart.

### Echoing

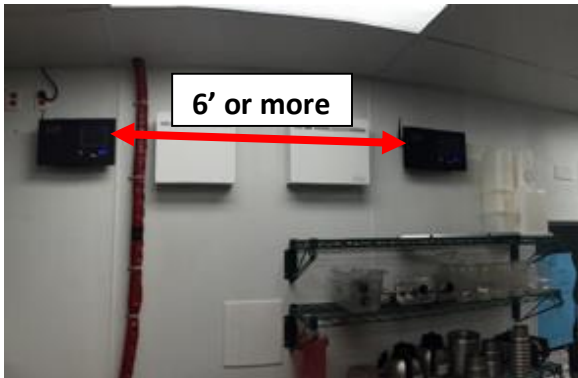
You may notice a slight echoing (your own voice being heard back in your headset) when taking an order. A small amount of echo that lasts a few seconds after you connect to a stall is normal. Severe echo, or persistent through an entire order is not.

#### Solution:

Adjusting VAA settings is a delicate balance. The idea is to set your sensitivity so it activates when the person wearing the headset is speaking. You do not want VAA activating when people are talking near the order taker or when other ambient noise is present. This will cause the customer's voice (inbound audio) to drop in volume.

When adjusting attenuation, the goal is for VAA to eliminate echo, but not to cancel out all inbound audio.

1. **DO NOT** set both sensitivity and attenuation to maximum. This may work well during the early morning or late at night when it's quiet inside the building; when ambient noise increases around the order takers, inbound volume will drop below an acceptable level.
2. *Tip* – Set Sensitivity to 5 and attenuation to 6 as a starting point. Try this and make changes from there.



## 6700 Lessons Learned

### Hearing “Device Failed” Message in Headset

Occasionally, you may hear a message in the headsets saying, “Device failed.” This indicates that one of the devices connected to the RS485 is no longer being recognized.

#### Solution:

Many times, this is caused by the 22 AWG wiring not being stripped back far enough. This causes an intermittent connection loss between devices which results in an audible, “Device failed” message heard in the headsets. Try stripping back your RS485 wires slightly more than normal, e.g. 8mm instead of 6mm.

#### Note:

**If any item on the RS485 chain needs to be re-wired, ensure all items on the chain are powered down until wiring is fixed.**