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## PAST ISSUES Online

June 06

-- Change Issue --

### Sound Sanctuary

#### The Wedge Between Us

by Richard Rutherford

The Pastor wants them, the choir wants them, every musician in the worship band wants them (drummers like two), and the FOH person frequently wishes they didn't exist at all. We are talking, of course, about stage monitors or wedges. They are on my "Three Evils of Church Audio" list for several reasons, and unfortunately in this case evil is many times tangible and audible. Let's take a brief look and listen...

##### The Personnel Problem

One issue is that stage wedges, by their very nature, cannot be controlled by the performer using them and the FOH person usually gets the blame for every squeal, hum, lack of "my mix" and so on. Some of this can be eradicated by using a dedicated monitor console (and another engineer) but physical space and budgets normally preclude this from being a practical solution.

It also seems illogical to require a parttime (sometimes relatively inexperienced) volunteer to mix FOH and four to eight monitor mixes at the whim of the worship band. It's just too much for one person to do well.

##### The Physics Problem

Even if the monitor mix is fantastic and there are four, six or eight boxes on the stage and the band is delighted, it may not be helping the house sound quality.

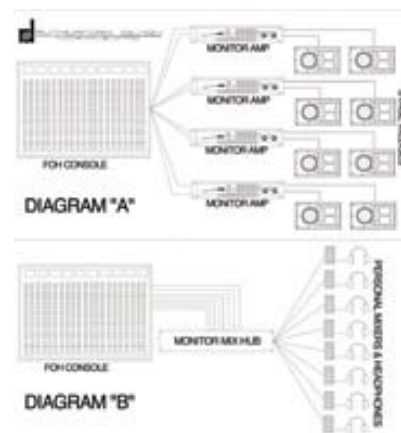
You must realize that once these wedges are cooking along at 68-75dB and you have the other issues of drums and guitar amplifiers), you will be listening to a cacophonous nightmare if you are seated in the first three or four rows.

I am venturing a guess that most churches have platforms that average 12-20 feet in depth and 30 to 45 feet in width. Most of the time you may be getting 50-60dB from stage "noise" if you sit up front.

At this point, the FOH engineer should realize that the house system has to be at 75dB or so with excellent coverage before anyone starts to hear it. Now, think about the fact you may want the system to average 90dB and effectively you have a signal to "noise" threshold of only 15dB in your whole system. That's a problem.

##### The Budget Issue

If you are starting from scratch this will be less intimidating than if you already own a bunch of wedges. You can see in Diagram A there are amps, cabling and speakers to be concerned with. And we really haven't even discussed processing for these: a lot of hardware, space, power requirement and so on. In a big facility you may plain old need this stuff for all the dance, theatrical large choir events and guest performers. Mostly you really could get by with four wedges and still only use one or two most of the time.



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In Diagram B, we have a very simplified PM system. (More accurately, some drummers and keyboard players like regular headphones so don't get stuck on the "inear" thing.) The drastic change in required equipment should be readily apparent. Overall cost will be less for this PM set-up vs. the amps and wedges, but in reality a compromise is more realistic.

Life is a Compromise

Every good audio system is a series of calculated compromises and this issue is no different. By installing a proper PM system we could just take eight auxiliary sends (or more) and send them down a CAT5 to a series of personal on-stage mixers and free up the mind (and busy hands) of an average FOH person.

Well, we wish it was all that simple, except that pastors rarely will be convinced to wear an ear bud, nor will the visiting keyboard virtuoso or four-member choral group. You will still need a couple boxes around for something and the amps and cabling that go with it. You will still need to rehearse with the band, assist volunteer singers with mic placement and battle for budgets to get electronic drums (or a shield for the live kit). As a house of worship audio person, you will have to be prepared to live in a constant state of compromise with people and equipment.

Real Options

PM systems come in several varieties and most of the popular brand names you'll find will work pretty well. The availability of personal mixers and freedom for the FOH operator is a huge key issue. The availability of expansion should always be considered as well as available routing to other I/O devices.

One must is good ear buds. Spend a little more and you'll be amazed at the level of quality, low end response and isolation from ambient "noise". Some personal mixers also have mixes that can be stored and called up as the worship team changes service to service or week to week.

Read, study, borrow, try and be prepared for some initial resistance to using ear buds! But once you get it all working, you'll find that wedges are an occasional annoyance instead of the devil incarnate. Oh man, we didn't even discuss wireless options...yet.

There's a lot to do...let's get busy.

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